

FERRANTI

INHALT

SERIE	SPANNUNGEN (V)				SEITE
ZVN 01AA	20	30	40	50	2
ZVN 01A	40	60	80	90	3
ZVN 01B	100	120	140	150	4
ZVN 01C	160	180	200	220	5
ZVN 02AA	20	30	40	50	6
ZVN 02A	40	60	80	90	7
ZVN 02B	100	120	140	150	8
ZVN 02C	160	180	200	220	9
ZVN 03D	300	350	400	450	10
ZVN 03E	500	550	600	650	11
ZVN 04D	300	350	400	450	12
ZVN 04E	500	550	600	650	13
ZVN 05D	300	350	400	450	14
ZVN 11A	40	60	80	90	15
ZVN 11B	100	120	140	150	16
ZVN 11C	160	180	200	220	17
ZVN 12AA	20	30	40	50	18
ZVN 12A	40	60	80	90	19
ZVN 12B	100	120	140	150	20
ZVN 12C	160	180	200	220	21
ZVN 13A	40	60	80	90	22
ZVN 13B	100	120	140	150	23
ZVN 13C	160	180	200	220	24
ZVP 01AA	-20	-30	-40	-50	25
ZVP 01A	-40	-60	-80	-90	26
ZVP 01B	-100	-120	-140	-150	27
ZVP 02AA	-20	-30	-40	-50	28
ZVP 02A	-40	-60	-80	-90	29
ZVP 02B	-100	-120	-140	-150	30
ZVP 12A	-40	-60	-80	-90	31
ZVP 12B	-100	-120	-140	-150	32
ZVP 13A	-40	-60	-80	-90	33
ZVP 13B	-100	-120	-140	-150	34
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GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 01A2 M	T0-3	20	3	5	50	3
ZVN 01A3 M		30				
ZVN 01A4 M		40				
ZVN 01A5 M		50				
ZVN 01A2 B	T0-39	20	3	5	5	1
ZVN 01A3 B		30				
ZVN 01A4 B		40				
ZVN 01A5 B		50				
ZVN 01A2 A	E-Line	20	1	2	1	0,45
ZVN 01A3 A		30				
ZVN 01A4 A		40				
ZVN 01A5 A		50				
ZVN 01A2 L	T0-220	20	3	5	40	2,8
ZVN 01A3 L		30				
ZVN 01A4 L		40				
ZVN 01A5 L		50				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 01A2			ZVN 01A3			ZVN 01A4			ZVN 01A5				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
V_{DSS}	Drain-Source Breakdown	20			30			40			50			V	$I_D = 1\text{mA}$ $V_{GS} = 0\text{V}$
$V_{GS(th)}$	Gate Threshold Voltage	0,8		2,4	0,8		2,4	0,8		2,4	0,8		2,4	V	$I_D = 1\text{mA}$ $V_{GS} = V_{DS}$
I_{GSS}	Gate Body Leakage		0,1	10		0,1	10		0,1	10		0,1	10	nA	$V_{GS} = \pm 20\text{V}$ $V_{DS} = 0$
I_{DSS}	Zero Gate Voltage Drain Current			1			1			1			1	μA	$V_{DS} = BV_{DSS}$ $V_{GS} = 0\text{V}$
				100			100			100			100	μA	$V_{DS} = 0,8 \cdot BV_{DSS}$, $T_A = 125^\circ\text{C}$ $V_{GS} = 0\text{V}$
$I_{D(ON)}$	ON-State Drain Current	2	3		2	3		2	3		2	3		A	$V_{DS} = 18\text{V}$ $V_{GS} = 10\text{V}$
														A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		1,0	2		1,2	2		1,4	2		1,6	2	Ω	$I_D = 1\text{A}$ $V_{GS} = 10\text{V}$
			2	3		2,2	3		2,4	3		2,6	3	Ω	$I_D = 500\text{mA}$ $V_{GS} = 5\text{V}$
g_{fs}	Forward Transconductance	450	500		450	500		450	500		450	500		mS	$V_{DS} = 18\text{V}$ $I_D = 500\text{mA}$ +
C_{ISS}	Input Capacitance		40	50		40	50		40	50		40	50	pF	$V_{DS} = 25\text{V}$ $V_{GS} = 0\text{V}$
C_{OSS}	Common Source Output Capacitance		20	25		20	25		20	25		20	25	pF	$f = 1\text{MHz}$
C_{RSS}	Reverse Transfer Capacitance		5	7		5	7		5	7		5	7	pF	
$t_{d(ON)}$	Turn ON Delay Time		3	5		3	5		3	5		3	5	ns	$V_{DS} = 18\text{V}$, $I_D = 1\text{A}$
t_r	Rise Time		5	8		5	8		5	8		5	8	ns	$R_S = 50\Omega$ +
$t_{d(OFF)}$	Turn OFF Delay Time		6	9		6	9		6	9		6	9	ns	
t_f	Fall Time		5	8		5	8		5	8		5	8	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 0104 M	TO-3	40	3	5	50	2,7
ZVN 0106 M		60				
ZVN 0108 M		80				
ZVN 0109 M		90				
ZVN 0104 B	TO-39	40	3	5	5	0,86
ZVN 0106 B		60				
ZVN 0108 B		80				
ZVN 0109 B		90				
ZVN 0104 A	E-Line	40	1	2	1	0,38
ZVN 0106 A		60				
ZVN 0108 A		80				
ZVN 0109 A		90				
ZVN 0104 L	TO-220	40	3	5	40	2,42
ZVN 0106 L		60				
ZVN 0108 L		80				
ZVN 0109 L		90				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 0104			ZVN 0106			ZVN 0108			ZVN 0109				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
V_{DSS}	Drain-Source Breakdown	40			60			80			90			V	$I_D = 1mA, V_{GS} = 0V$
$V_{GS(th)}$	Gate Threshold Voltage	0,8		2,4	0,8		2,4	0,8		2,4	0,8		2,4	V	$I_D = 1mA, V_{DS} = 0V$
I_{GSS}	Gate Body Leakage		0,1	100		0,1	100		0,1	100		0,1	100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
I_{DSS}	Zero Gate Voltage Drain Current			1			1			1			1	μA	$V_{DS} = V_{DSS}, V_{GS} = 0V$
				100			100			100			100	μA	$V_{DS} = 0,8 \cdot V_{DSS}, V_{GS} = 0, I_A = 1250C$
$I_{D(ON)}$	ON-State Drain Current	0,25	0,75		0,25	0,75		0,25	0,75		0,25	0,75		A	$V_{DS} = 25V, V_{GS} = 5V$
		1,0	2,0		1,0	2,0		1,0	2,0		1,0	2,0		A	$V_{DS} = 25V, V_{GS} = 10V$
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		4,0	6,0		4,5	6,0		5,0	6,0		5,5	6,0	Ω	$I_D = 0,25V, V_{GS} = 5V$
			2,0	4,0		2,5	4,0		3,0	4,0		3,5	4,0	Ω	$I_D = 1A, V_{GS} = 10V$
g_{fs}	Forward Transconductance	300	400		300	400		300	400		300	400		mS	$V_{DS} = 25V, I_D = 0,5A$
C_{ISS}	Input Capacitance		40	50		40	50		40	50		40	50	pF	$V_{DS} = 25V$
C_{OSS}	Common Source Output Capacitance		20	25		20	25		20	25		20	25	pF	$V_{GS} = 0V$
C_{RSS}	Reverse Transfer Capacitance		2	5		2	5		2	5		2	5	pF	$f = 1MHz$
$t_{d(ON)}$	Turn ON Delay Time		3	5		3	5		3	5		3	5	ns	$V_{DS} = 25V,$
t_r	Rise Time		5	8		5	8		5	8		5	8	ns	$I_D = 1A,$
$t_{d(OFF)}$	Turn OFF Delay Time		6	9		6	9		6	9		6	9	ns	$R_S = 50 \Omega$
t_f	Fall Time		5	8		5	8		5	8		5	8	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	$V_{DS \max}$ (V)	$I_{DS \text{ cont.}}$ (A)	$I_{DS \text{ puls}}$ (A)	P_D ($T_C=25^\circ\text{C}$) (W)	empfohlener Grenzstrom I_D (A)
ZVN 0110 M	TO-3	100	3	6	50	1,8
ZVN 0112 M		120				
ZVN 0114 M		140				
ZVN 0115 M		150				
ZVN 0110 B	TO-39	100	3	6	5	0,58
ZVN 0112 B		120				
ZVN 0114 B		140				
ZVN 0115 B		150				
ZVN 0110 A	E-Line	100	1	2	1	0,26
ZVN 0112 A		120				
ZVN 0114 A		140				
ZVN 0115 A		150				
ZVN 0110 L	TO-220	100	3	6	40	1,65
ZVN 0112 L		120				
ZVN 0114 L		140				
ZVN 0115 L		150				

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 0110			ZVN 0112			ZVN 0114			ZVN 0115				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
V_{DSS}	Drain-Source Breakdown	100			120			140			150			V	$I_D = 1\text{mA}$, $V_{GS} = 0\text{V}$
$V_{GS(th)}$	Gate Threshold Voltage	1,0		3,0	1,0		3,0	1,0		3,0	1,0		3,0	V	$I_D = 1\text{mA}$, $V_{GS} = V_{DS}$
I_{GSS}	Gate Body Leakage		0,1	100		0,1	100		0,1	100		0,1	100	nA	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$
I_{DSS}	Zero Gate Voltage Drain Current			10			10			10			10	μA	$V_{DS} = BV_{DSS}$, $V_{GS} = 0\text{V}$
				100			100			100			100	μA	$V_{DS} = 0,8 \cdot BV_{DSS}$, $V_{GS} = 0\text{V}$, $T_A = 125^\circ\text{C}$
$I_{D(ON)}$	ON-State Drain Current	0,5	1		0,5	1		0,5	1		0,5	1		A	$V_{DS} = 25\text{V}$, $V_{GS} = 10\text{V}$
														A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		4,5	8		5,0	8		5,5	8		6,0	8	Ω	$V_{GS} = 10\text{V}$, $I_D = 5\text{A}$
														Ω	
g_{fs}	Forward Transconductance	300	325		300	325		300	325		300	325		mS	$V_{DS} = 25\text{V}$, $I_D = 25\text{A}$
C_{ISS}	Input Capacitance		40	50		40	50		40	50		40	50	pF	$V_{DS} = 25\text{V}$, $I_D = 500\text{mA}$, $f = 1\text{MHz}$
C_{OSS}	Common Source Output Capacitance		20	25		20	25		20	25		20	25	pF	
C_{RSS}	Reverse Transfer Capacitance		5	7		5	7		5	7		5	7	pF	
$t_{d(ON)}$	Turn ON Delay Time		3	5		3	5		3	5		3	5	ns	$V_{DS} = 25\text{V}$, $I_D = 500\text{mA}$, $R_S = 50\Omega$
t_r	Rise Time		5	8		5	8		5	8		5	8	ns	
$t_{d(OFF)}$	Turn OFF Delay Time		6	9		6	9		6	9		6	9	ns	
t_f	Fall Time		5	8		5	8		5	8		5	8	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	$V_{DS\ max}$ (V)	$I_{DS\ cont.}$ (A)	$I_{DS\ puls}$ (A)	P_D ($T_C=25^{\circ}C$) (W)	empfohlener Grenzstrom I_D (A)
ZVN 0116 M	T0-3		3	6	50	1,25
ZVN 0118 M						
ZVN 0120 M						
ZVN 0122 M						
ZVN 0116 B	T0-39		3	6	5	0,4
ZVN 0118 B						
ZVN 0120 B						
ZVN 0122 B						
ZVN 0116 A	E-Line		1	2	1	0,18
ZVN 0118 A						
ZVN 0120 A						
ZVN 0122 A						
ZVN 0116 L	T0-220		3	6	40	1,12
ZVN 0118 L						
ZVN 0120 L						
ZVN 0122 L						

ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}C$ unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 0116			ZVN 0118			ZVN 0120			ZVN 0122				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
BV_{DSS}	Drain-Source Breakdown	160			180			200			220			V	$I_D = 1mA, V_{GS} = 0V$
$V_{GS(th)}$	Gate Threshold Voltage	1		3	1		3	1		3	1		3	V	$I_D = 1mA, V_{GS} = V_{DS}$
I_{GSS}	Gate Body Leakage		0,1	100		0,1	100		0,1	100		0,1	100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
I_{DSS}	Zero Gate Voltage Drain Current			10			10			10			10	μA	$V_{DS} = BV_{DSS}, V_{GS} = 0V$
				1			1			1			1	mA	$V_{DS} = 0,8 \cdot BV_{DSS}, V_{GS} = 0V, T_A = 125^{\circ}C$
$I_{D(ON)}$	ON-State Drain Current	0,4	0,8		0,4	0,8		0,4	0,8		0,4	0,8		A	$V_{DS} = 25V, V_{GS} = 10V$
														A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance			16			16			16			16	Ω	$I_D = 250mA, V_{GS} = 10V$
														Ω	
g_{fs}	Forward Transconductance	100	150		100	150		100	150		100	150		mS	$V_{DS} = 25V, I_D = 100mA +$
C_{ISS}	Input Capacitance		40	50		40	50		40	50		40	50	pF	$V_{DS} = 25V$
C_{OSS}	Common Source Output Capacitance		20	25		20	25		20	25		20	25	pF	$V_{GS} = 0V$
C_{RSS}	Reverse Transfer Capacitance		5	7		5	7		5	7		5	7	pF	$f = 1MHz$
$t_{d(ON)}$	Turn ON Delay Time		3	5		3	5		3	5		3	5	ns	$V_{DS} = 25V, I_D = 250mA, R_S = 50\Omega +$
t_r	Rise Time		5	8		5	8		5	8		5	8	ns	
$t_{d(OFF)}$	Turn OFF Delay Time		6	9		6	9		6	9		6	9	ns	
t_f	Fall Time		5	8		5	8		5	8		5	8	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	$V_{DS \max}$ (V)	$I_{DS \text{ cont.}}$ (A)	$I_{DS \text{ puls}}$ (A)	P_D ($T_C=25^\circ\text{C}$) (W)	empfohlener Grenzstrom I_D (A)
ZVN 02A2 M	T0-3	20	6	12	75	4,38
ZVN 02A3 M		30				
ZVN 02A4 M		40				
ZVN 02A5 M		50				
ZVN 02A2 B	T0-39	20	4	8	6	1,80
ZVN 02A3 B		30				
ZVN 02A4 B		40				
ZVN 02A5 B		50				
ZVN 02A2 L	T0-220	20	4	8	50	3,20
ZVN 02A3 L		30				
ZVN 02A4 L		40				
ZVN 02A5 L		50				

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 02A2			ZVN 02A3			ZVN 02A4			ZVN 02A5				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
BV_{DSS}	Drain-Source Breakdown	20			30			40			50			V	$I_D = 2,5mA, V_{GS} = 0V$
$V_{GS(th)}$	Gate Threshold Voltage	0,8		2,4	0,8		2,4	0,8		2,4	0,8		2,4	V	$I_D = 1mA, V_{GS} = V_{DS}$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
I_{DSS}	Zero Gate Voltage Drain Current			25			25			25			25	μA	$V_{DS} = BV_{DSS}, V_{GS} = 0V$
				1			1			1			1	mA	$V_{DS} = 0,8 \cdot BV_{DSS}, T_A = 125^{\circ}C$ $V_{RS} = 0V$
$I_{D(ON)}$	ON-State Drain Current	4	8		4	8		4	8		4	8		A	$V_{DS} = 18V, V_{GS} = 10V$
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		0,5	1		0,6	1		0,7	1		0,8	1	Ω	$V_{GS} = 10V, I_D = 4A$
														Ω	
g_{fs}	Forward Transconductance	1	1,2		1	1,2		1	1,2		1	1,2		S	$V_{DS} = 18V, I_D = 2A$ +
C_{ISS}	Input Capacitance		70	80		70	80		70	80		70	80	pF	$V_{DS} = 18V,$
C_{OSS}	Common Source Output Capacitance		60	70		60	70		60	70		60	70	pF	$V_{GS} = 0V,$
C_{RSS}	Reverse Transfer Capacitance		10	15		10	15		10	15		10	15	pF	$f = 1MHz$ +
$t_{d(ON)}$	Turn ON Delay Time		4	6		4	6		4	6		4	6	ns	$V_{DS} = 18V,$
t_r	Rise Time		7	10		7	10		7	10		7	10	ns	$I_D = 2A,$
$t_{d(OFF)}$	Turn OFF Delay Time		16	20		16	20		16	20		16	20	ns	$R_S = 50\Omega$ +
t_f	Fall Time		14	18		14	18		14	18		14	18	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	$V_{DS\ max}$ (V)	$I_{DS\ cont.}$ (A)	$I_{DS\ puls}$ (A)	P_D ($T_C=25^\circ C$) (W)	empfohlener Grenzstrom I_D (A)
ZVN 0204 M	TO-3	40	6	12	75	4,7
ZVN 0206 M		60				
ZVN 0208 M		80				
ZVN 0209 M		90				
ZVN 0204 B	TO-39	40	4	8	6	1,32
ZVN 0206 B		60				
ZVN 0208 B		80				
ZVN 0209 B		90				
ZVN 0204 L	TO-220	40	4	8	50	3,40
ZVN 0206 L		60				
ZVN 0208 L		80				
ZVN 0209 L		90				

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ C$ unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 0204			ZVN 0206			ZVN 0208			ZVN 0209				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
BV_{DSS}	Drain-Source Breakdown	40			60			80			90			V	$I_D = 2,5\text{ mA}, V_{GS} = 0V$
$V_{GS(th)}$	Gate Threshold Voltage	0,8		2,4	0,8		2,4	0,8		2,4	0,8		2,4	V	$I_D = 1\text{ mA}, V_{DS} = V_{GS}$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{DS} = 0, V_{GS} = \pm 20V$
I_{DSS}	Zero Gate Voltage Drain Current			25			25			25			25	μA	$V_{DS} = BV_{DSS}, V_{GS} = 0V$
				1			1			1			1	mA	$V_{DS} = 0,8 \cdot BV_{DSS}, T_A = 125^{\circ}C$
$I_{D(ON)}$	ON-State Drain Current	3	6		3	6		3	6		3	6		A	$V_{DS} = 25V, V_{GS} = 10V$
		2	3		2	3		2	3		2	3		A	$V_{DS} = 25V, V_{GS} = 5V$
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		1,2	2		1,3	2		1,4	2		1,5	2	Ω	$I_D = 2A, V_{GS} = 10V$
														Ω	
g_{fs}	Forward Transconductance	800	950		800	950		800	950		800	950		mS	$I_D = 2A, V_{DS} = 25V +$
C_{ISS}	Input Capacitance		65	75		65	75		65	75		65	75	pF	$V_{DS} = 25V$
C_{OSS}	Common Source Output Capacitance		55	65		55	65		55	65		55	65	pF	$V_{GS} = 0V +$
C_{RSS}	Reverse Transfer Capacitance		10	15		10	15		10	15		10	15	pF	$f = 1\text{ MHz}$
$t_{d(ON)}$	Turn ON Delay Time		4	6		4	6		4	6		4	6	ns	$V_{DS} = 25V$ $I_D = 2A$ $R_S = 50\Omega$
t_r	Rise Time		7	10		7	10		7	10		7	10	ns	
$t_{d(OFF)}$	Turn OFF Delay Time		16	20		16	20		16	20		16	20	ns	
t_f	Fall Time		14	18		14	18		14	18		14	18	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 0210 M	T0-3	100	6	12	75	3,18
ZVN 0212 M		120				
ZVN 0214 M		140				
ZVN 0215 M		150				
ZVN 0210 B	T0-39	100	4	8	6	0,90
ZVN 0212 B		120				
ZVN 0214 B		140				
ZVN 0215 B		150				
ZVN 0210 L	T0-220	100	4	8	50	2,60
ZVN 0212 L		120				
ZVN 0214 L		140				
ZVN 0215 L		150				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 0210			ZVN 0212			ZVN 0214			ZVN 0215				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
$B_{V_{DSS}}$	Drain-Source Breakdown	100			120			140			150			V	$I_D = 2,5 \text{ mA}$
$V_{GS(th)}$	Gate Threshold Voltage	1		3	1		3	1		3	1		3	V	$I_D = 1 \text{ mA}$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GSS} = +20V, V_{DS} = 0V$
I_{DSS}	Zero Gate Voltage Drain Current			25			25			25			25	μA	$V_{DS} = B_{V_{DSS}}, V_{GS} = 0 -$ $V_{DS} = 0,8 \cdot B_{V_{DSS}}, I_A = 1250 \mu A$ $V_{GS} = 0V$
$I_{D(ON)}$	ON-State Drain Current	2	4		2	4		2	4		2	4		A	$V_{GS} = 10V, V_{DS} = 25V$
														A	
$R_{DS(ON)}$	Static and Small Signal Drain-Source ON State Resistance	2,3	4		2,5	4		2,7	4		2,9	4		Ω	$I_D = 1A, V_{GS} = 10V,$
$r_{ds(ON)}$		2,2	5		2,5	5		2,7	5		2,9	5		Ω	$I_D = 250mA, V_{GS} = 5V$
g_{fs}	Forward Transconductance	250	600		250	600		250	600		250	600		mS	$V_{DS} = 25V, V_{GS} = 10V +$
C_{ISS}	Input Capacitance		70	80		70	80		70	80		70	80	pF	$V_{DS} = 25V,$
C_{OSS}	Common Source Output Capacitance		40	50		40	50		40	50		40	50	pF	$V_{GS} = 0V,$
C_{RSS}	Reverse Transfer Capacitance		10	15		10	15		10	15		10	15	pF	$f = 1 \text{ MHz}$
$t_{d(ON)}$	Turn ON Delay Time		4	6		4	6		4	6		4	6	ns	$V_{DS} = 25V,$
t_r	Rise Time		7	10		7	10		7	10		7	10	ns	$I_D = 1A,$
$t_{d(OFF)}$	Turn OFF Delay Time		16	20		16	20		16	20		16	20	ns	$R_S = 50\Omega$
t_f	Fall Time		14	18		14	18		14	18		14	18	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 0216 M	T0-3	160	6	12	75	2,25
ZVN 0218 M		180				
ZVN 0220 M		200				
ZVN 0220 M		220				
ZVN 0216 B	T0-39	160	4	8	6	0,64
ZVN 0218 B		180				
ZVN 0220 B		200				
ZVN 0222 B		220				
ZVN 0216 L	T0-220	160	4	8	50	1,84
ZVN 0218 L		180				
ZVN 0220 L		200				
ZVN 0222 L		220				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 0216			ZVN 0218			ZVN 0220			ZVN 0222				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
BV_{DSS}	Drain-Source Breakdown	160			180			200			220			V	$I_D = 2.5mA, V_{GS} = 0V$
$V_{GS(th)}$	Gate Threshold Voltage	1		3	1		3	1		3	1		3	V	$V_{GS} = V_{DS}, I_D = 1mA$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
I_{DSS}	Zero Gate Voltage Drain Current			25			25			25			25	μA	$V_{DS} = BV_{DSS}, V_{GS} = 0V$
				1			1			1			1	mA	$V_{DS} = 0.8 \cdot BV_{DSS}, V_{GS} = 0V$ $T_A = 125^{\circ}C$
$I_{D(ON)}$	ON-State Drain Current	1	1,8		1	1,8		1	1,8		1	1,8		A	$V_{DS} = 25V, V_{GS} = 10V$
														A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		4	8		4	8		4	8		4	8	Ω	$I_D = 500mA, V_{GS} = 10V$
														Ω	
g_{fs}	Forward Transconductance	400	650		400	650		400	650		400	650		mS	$V_{DS} = 25V, I_D = 1A$
C_{ISS}	Input Capacitance		70	80		70	80		70	80		70	80	pF	$V_{DS} = 25V,$
C_{OSS}	Common Source Output Capacitance		25	35		25	35		25	35		25	35	pF	$V_{GS} = 0V,$
C_{RSS}	Reverse Transfer Capacitance		6	12		6	12		6	12		6	12	pF	$f = 1MHz$
$t_{d(ON)}$	Turn ON Delay Time		4	6		4	6		4	6		4	6	ns	
t_r	Rise Time		7	10		7	10		7	10		7	10	ns	$V_{DS} = 25V,$
$t_{d(OFF)}$	Turn OFF Delay Time		16	20		16	20		16	20		16	20	ns	$I_D = 500mA,$
t_f	Fall Time		14	18		14	18		14	18		14	18	ns	$R_S = 50\Omega$

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GERÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 0330 M	T0-3	300	6	12	125	4,75
ZVN 0335 M		350				
ZVN 0340 M		400				
ZVN 0345 M		450				
ZVN 0330 B	T0-39	300	6	12	6	1,04
ZVN 0335 B		350				
ZVN 0340 B		400				
ZVN 0345 B		450				
ZVN 0330 L	T0-220	300	6	12	75	3,67
ZVN 0335 L		350				
ZVN 0340 L		400				
ZVN 0345 L		450				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 0330			ZVN 0335			ZVN 0340			ZVN 0345				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
B _V DSS	Drain-Source Breakdown	300			350			400			450			V	I _D = 10mA, V _{GS} = 0V
V _{GS(th)}	Gate Threshold Voltage	1,0		3,0	1,0		3,0	1,0		3,0	1,0		3,0	V	V _{DS} = V _{GS} , I _D = 10mA
I _{GSS}	Gate Body Leakage			100			100			100			100	nA	V _{GS} = ± 20V, V _{DS} = 0V
I _{DSS}	Zero Gate Voltage Drain Current			100			100			100			100	μA	V _{DS} = B _V DSS, V _{GS} = 0V
				4,0			4,0			4,0			4,0	mA	V _{DS} = 0,8 · B _V DSS, V _{GS} = 0V A = 125°C
I _{D(ON)}	ON-State Drain Current	1,5	5		1,5	5		1,5	5		1,5	5		A	V _{DS} = 25V, V _{GS} = 5V
		2	6		2	6		2	6		2	6		A	V _{DS} = 25V, V _{GS} = 10V
R _{DS(ON)} + r _{ds(ON)}	Static and Small Signal Drain-Source ON State Resistance		3,0	4,5		3,3	4,5		3,6	4,5		4,0	4,5	Ω	V _{GS} = 5V, I _D = 0,5A
			2,0	3,0		2,0	3,0		2,0	3,0		2,0	3,0	Ω	V _{GS} = 10V, I _D = 1A
g _{fs}	Forward Transconductance	2,0	2,5		2,0	2,5		2,0	2,5		2,0	2,5		u	V _{GS} = 25V, I _D = 1A +
C _{ISS}	Input Capacitance		500	600		500	600		500	600		500	600	pF	V _{GS} = 0V V _{DS} = 25V, f = 1MHz
C _{OSS}	Common Source Output Capacitance		50	100		50	100		50	100		50	100	pF	
C _{RSS}	Reverse Transfer Capacitance		25	50		25	50		25	50		25	50	pF	
t _{d(ON)}	Turn ON Delay Time		7	10		7	10		7	10		7	10	ns	V _{DS} = 25V I _D = 1A R _S = 50 Ω +
t _r	Rise Time		7	10		7	10		7	10		7	10	ns	
t _{d(OFF)}	Turn OFF Delay Time		50	80		50	80		50	80		50	80	ns	
t _f	Fall Time		20	25		20	25		20	25		20	25	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

[illegible]

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 0350			ZVN 0355			ZVN 0360			ZVN 0365				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
V_{DSS}	Drain-Source Breakdown	500			550			600			650			V	$I_D = 10 \text{ mA}$, $V_{GS} = 0 \text{ V}$
$V_{GS(th)}$	Gate Threshold Voltage	1,0		3,0	1,0		3,0	1,0		3,0	1,0		3,0	V	$V_{GS} = V_{DS}$, $I_D = 10 \text{ mA}$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20 \text{ V}$, $V_{DS} = 0 \text{ V}$
I_{DSS}	Zero Gate Voltage Drain Current			200			200			200			200	μA	$V_{DS} = BV_{DSS}$, $V_{GS} = 0 \text{ V}$
														μA	
$I_{D(ON)}$	ON-State Drain Current	2	4		2	4		2	4		2	4		A	$V_{DS} = 25 \text{ V}$, $V_{GS} = 10 \text{ V}$
														A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		3	6		3	6		3	6		3	6	Ω	$I_D = 0,5 \text{ A}$, $V_{GS} = 10 \text{ V}$
														Ω	
g_{fs}	Forward Transconductance	1,5	2		1,5	2		1,5	2		1,5	2		S	$I_D = 2 \text{ A}$, $V_{DS} = 25 \text{ V} +$
C_{ISS}	Input Capacitance		500	600		500	600		500	600		500	600	pF	$V_{DS} = 25 \text{ V}$
C_{OSS}	Common Source Output Capacitance		50	100		50	100		50	100		50	100	pF	$V_{GS} = 0 \text{ V}$
C_{RSS}	Reverse Transfer Capacitance		25	50		25	50		25	50		25	50	pF	$f = 1 \text{ MHz}$
$t_{d(ON)}$	Turn ON Delay Time		7	10		7	10		7	10		7	10	ns	$V_{DS} = 25 \text{ V}$
t_r	Rise Time		7	10		7	10		7	10		7	10	ns	$I_D = 1 \text{ A}$
$t_{d(OFF)}$	Turn OFF Delay Time		50	80		50	80		50	80		50	80	ns	$R_S = 50 \Omega$
t_f	Fall Time		20	25		20	25		20	25		20	25	ns	+

- + sample test

VORLÄUFIGE DATEN

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	$V_{DS \max}$ (V)	$I_{DS \text{ cont.}}$ (A)	$I_{DS \text{ puls}}$ (A)	P_D ($T_C=25^\circ\text{C}$) (W)	empfohlener Grenzstrom I_D (A)
ZVN 0450 M	TO-3	500	16	32	150	6,4
ZVN 0455 M		550				
ZVN 0460 M		600				
ZVN 0465 M		650				

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 0450			ZVN 0455			ZVN 0460			ZVN 0465				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
BV_{DSS}	Drain-Source Breakdown	500			550			600			650			V	$I_D = 25\text{mA}$, $V_{GS} = 0\text{V}$
$V_{GS(th)}$	Gate Threshold Voltage	1		4	1		4	1		4	1		4	V	$I_D = 10\text{mA}$, $V_{DS} = V_{GS}$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$
I_{DSS}	Zero Gate Voltage Drain Current			500			500			500			500	μA	$V_{DS} = BV_{DSS}$, $V_{GS} = 0\text{V}$
				25			25			25			25	mA	$V_{DS} = 0,8 \cdot BV_{DSS}$, $V_{GS} = 0\text{V}$, $T_A = 125^\circ\text{C}$
$I_{D(ON)}$	ON-State Drain Current	10	20		10	20		10	20		10	20		A	$V_{DS} = 25\text{V}$, $V_{GS} = 10\text{V}$
														A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance			2			2			2			2	Ω	$I_D = 5\text{A}$, $V_{GS} = 10\text{V}$
														Ω	
g_{fs}	Forward Transconductance	5	8		5	8		5	8		5	8		S	$V_{DS} = 25\text{V}$, $I_D = 10\text{A}$ +
C_{ISS}	Input Capacitance		1800	2000		1800	2000		1800	2000		1800	2000	pF	$V_{DS} = 25\text{V}$, +
C_{OSS}	Common Source Output Capacitance		300	400		300	400		300	400		300	400	pF	$V_{GS} = 0\text{V}$, +
C_{RSS}	Reverse Transfer Capacitance		75	100		75	100		75	100		75	100	pF	$f = 1\text{MHz}$
$t_d(ON)$	Turn ON Delay Time		20	30		20	30		20	30		20	30	ns	$V_{DS} = 25\text{V}$, +
t_r	Rise Time		20	30		20	30		20	30		20	30	ns	$I_D = 1\text{A}$, +
$t_d(OFF)$	Turn OFF Delay Time		350	400		350	400		350	400		350	400	ns	$R_S = 50\ \Omega$ +
t_f	Fall Time		80	100		80	100		80	100		80	100	ns	

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 0530 B	TO-39	300	1	2	5	0,168
ZVN 0535 B		350				
ZVN 0540 B		400				
ZVN 0545 B		450				
ZVN 0530 A	E-Line	300	1	2	1	0,075
ZVN 0535 A		350				
ZVN 0540 A		400				
ZVN 0545 A		450				
ZVN 0530 L	TO-220	300	2	4	50	0,533
ZVN 0535 L		350				
ZVN 0540 L		400				
ZVN 0545 L		450				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 0535			ZVN 0540			ZVN 0540			ZVN 0545				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
V_{DSS}	Drain-Source Breakdown	300			350			400			450			V	$I_D = 1mA, V_{GS} = 0V$
$V_{GS(th)}$	Gate Threshold Voltage	1,0		3,0	1,0		3,0	1,0		3,0	1,0		3,0	V	$V_{GS} = V_{DS}, I_D = 1mA$
I_{GSS}	Gate Body Leakage			10			10			10			10	nA	$V_{GS} = \pm 20V \quad V_{DS} = 0V$
I_{DSS}	Zero Gate Voltage Drain Current			10			10			10			10	μA	$V_{DS} = V_{DSS}$
				400			400			400			400	μA	$V_{DS} = 0,8 \cdot V_{DSS}, V_{GS} = 0V, T_A = 125^\circ C$
$I_{D(ON)}$	ON-State Drain Current	100	200		100	200		100	200		100	200		mA	$V_{DS} = 25V, V_{GS} = 10V$
														A	
$R_{DS(ON)} +$	Static and Small Signal Drain-Source ON		40	80		40	80		40	80		40	80	Ω	$V_{GS} = 10V, I_D = 100mA$
$r_{ds(ON)}$	State Resistance			100			100			100			100	Ω	$V_{GS} = 5V, I_D = 50mA$
g_{fs}	Forward Transconductance	100	200		100	200		100	200		100	200		mS	$V_{GS} = 25V, I_D = 50mA +$
C_{ISS}	Input Capacitance		45	50		45	50		45	50		45	50	pF	$V_{DS} = 25V,$ $V_{GS} = 0V,$ $f = 1MHz$
C_{OSS}	Common Source Output Capacitance		8	10		8	10		8	10		8	10	pF	
C_{RSS}	Reverse Transfer Capacitance		1	2		1	2		1	2		1	2	pF	
$t_{d(ON)}$	Turn ON Delay Time		5	10		5	10		5	10		5	10	ns	$V_{DS} = 25V,$ $I_D = 100mA,$ $R_S = 50 \Omega$
t_r	Rise Time		5	10		5	10		5	10		5	10	ns	
$t_{d(OFF)}$	Turn OFF Delay Time		6	10		6	10		6	10		6	10	ns	
t_f	Fall Time		5	10		5	10		5	10		5	10	ns	+

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1104 M	TO-3	40	3	16	100	7,35
ZVN 1106 M		60				
ZVN 1108 M		80				
ZVN 1109 M		90				
ZVN 1104 B	TO-39	40	3	16	6	1,80
ZVN 1106 B		60				
ZVN 1108 B		80				
ZVN 1109 B		90				
ZVN 1104 L	TO-220	40	3	16	60	5,70
ZVN 1106 L		60				
ZVN 1108 L		80				
ZVN 1109 L		90				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS	
		ZVN 1104			ZVN 1106			ZVN 1108			ZVN 1109					
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max			
V_{DSS}	Drain-Source Breakdown	40			60			80			90			V	$I_D = 5mA, V_{GS} = 0V$	
$V_{GS(th)}$	Gate Threshold Voltage	0,8		2,4	0,8		2,4	0,8		2,4	0,8		2,4	V	$I_D = 5mA, V_{GS} = 0V$	
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$	
I_{DSS}	Zero Gate Voltage Drain Current			50			50			50			50	μA	$V_{DS} = BV_{DSS}, V_{GS} = 0V$	
				2			2			2			2	mA	$V_{DS} = 0,8 \cdot BV_{DSS}, V_{GS} = 0V, I_A = 125\mu C$	
$I_{D(ON)}$	ON-State Drain Current	5	10		5	10		5	10		5	10		A	$V_{DS} = 25V, V_{GS} = 10V$	
														A		
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		0,5	1		0,5	1		0,5	1		0,5	1	Ω	$V_{GS} = 10V, I_D = 5A$	
			0,8	1,5		0,8	1,5		0,8	1,5		0,8	1,5	Ω	$V_{GS} = 5V, I_D = 2A$	
g_{fs}	Forward Transconductance	2	2,5		2	2,5		2	2,5		2	2,5		S	$I_D = 4A, V_{DS} = 25V +$	
C_{ISS}	Input Capacitance		200	300		200	300		200	300		200	300	pF	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$	
C_{OSS}	Common Source Output Capacitance		75	100		75	100		75	100		75	100	pF		$+ $
C_{RSS}	Reverse Transfer Capacitance		20	30		20	30		20	30		20	30	pF		
$t_{d(ON)}$	Turn ON Delay Time		10	20		10	20		10	20		10	20	ns	$V_{DS} = 25V, I_D = 5V, R_S = 50\Omega +$	
t_r	Rise Time		5	10		5	10		5	10		5	10	ns		
$t_{d(OFF)}$	Turn OFF Delay Time		20	40		20	40		20	40		20	40	ns		
t_f	Fall Time		5	10		5	10		5	10		5	10	ns		

+ sample test

GRENZDATEN

VORLAUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1110 M	T0-3	100	8	16	100	5,2
ZVN 1112 M		120				
ZVN 1114 M		140				
ZVN 1115 M		150				
ZVN 1110 B	T0-39	100	8	16	6	1,27
ZVN 1112 B		120				
ZVN 1114 B		140				
ZVN 1115 B		150				
ZVN 1110 L	T0-220	100	8	16	60	4,03
ZVN 1112 L		120				
ZVN 1114 L		140				
ZVN 1115 L		150				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 1110			ZVN 1112			ZVN 1114			ZVN 1115				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
BV_{DSS}	Drain-Source Breakdown	100			120			140			150			V	$I_D = 5mA, V_{GS} = 0V$
$V_{GS(th)}$	Gate Threshold Voltage	1		3	1		3	1		3	1		3	V	$I_D = 5mA, V_{GS} = V_{DS}$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
I_{DSS}	Zero Gate Voltage Drain Current			50			50			50			50	μA	$V_{DS} = BV_{DSS}$
				2			2			2			2	mA	$V_{DS} = 0,8 \cdot BV_{DSS}, V_{GS} = 0V, T_A = 125^\circ C$
$I_{D(ON)}$	ON-State Drain Current	3	6		3	6		3	6		3	6		A	$V_{DS} = 25V, V_{GS} = 10V$
		2	3		2	3		2	3		2	3		A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		1,2	2		1,3	2		1,4	2		1,5	2	Ω	$V_{GS} = 10V, I_D = 2A$
g_{fs}	Forward Transconductance	1,5	2		1,5	2		1,5	2		1,5	2		Ω	
C_{ISS}	Input Capacitance		200	300		200	300		200	300		200	300	pF	$V_{DS} = 25V, I_D = 2A +$
C_{OSS}	Common Source Output Capacitance		75	100		75	100		75	100		75	100	pF	$I_{DS} = 25V, V_{GS} = 0V, f = 1MHz$
C_{RSS}	Reverse Transfer Capacitance		20	30		20	30		20	30		20	30	pF	
$t_{d(ON)}$	Turn ON Delay Time		10	20		10	20		10	20		20	20	ns	
t_r	Rise Time		5	10		5	10		5	10		5	10	ns	$V_{DS} = 25V, I_D = 2A,$
$t_{d(OFF)}$	Turn OFF Delay Time		20	40		20	40		20	40		20	40	ns	$R_S = 50\Omega$
t_f	Fall Time		5	10		5	10		5	10		5	10	ns	+

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1104 M	TO-3	40	8	16	100	7,35
ZVN 1106 M		60				
ZVN 1108 M		80				
ZVN 1109 M		90				
ZVN 1104 B	TO-39	40	3	16	6	1,80
ZVN 1106 B		60				
ZVN 1108 B		80				
ZVN 1109 B		90				
ZVN 1104 L	TO-220	40	8	16	60	5,70
ZVN 1106 L		60				
ZVN 1108 L		80				
ZVN 1109 L		90				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS	
		ZVN 1104			ZVN 1106			ZVN 1108			ZVN 1109					
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max			
B _V DSS	Drain-Source Breakdown	40			60			80			90			V	I _D = 5mA, V _{GS} = 0V	
V _{GS} (th)	Gate Threshold Voltage	0,8		2,4	0,8		2,4	0,8		2,4	0,8		2,4	V	I _D = 5mA, V _{GS} = 0V	
I _{GSS}	Gate Body Leakage			100			100			100			100	nA	V _{GS} = ± 20V, V _{DS} = 0V	
I _{DSS}	Zero Gate Voltage Drain Current			50			50			50			50	μA	V _{DS} = B _V DSS, V _{GS} = 0V	
				2			2			2			2	mA	V _{DS} = 0,8 · B _V DSS, V _{GS} = 0V, T _A = 125°C	
I _D (ON)	ON-State Drain Current	5	10		5	10		5	10		5	10		A	V _{DS} = 25V, V _{GS} = 10V	
														A		
R _{DS} (ON) + r _{ds} (ON)	Static and Small Signal Drain-Source ON State Resistance	0,5	1		0,5	1		0,5	1		0,5	1		Ω	V _{GS} = 10V, I _D = 5A	
		0,8	1,5		0,8	1,5		0,8	1,5		0,8	1,5		Ω	V _{GS} = 5V, I _D = 2A	
g _{fs}	Forward Transconductance	2	2,5		2	2,5		2	2,5		2	2,5		Ω	I _D = 4A, V _{DS} = 25V +	
C _{ISS}	Input Capacitance		200	300		200	300		200	300		200	300	pF	V _{DS} = 25V, V _{GS} = 0V, f = 1 MHz	
C _{OSS}	Common Source Output Capacitance		75	100		75	100		75	100		75	100	pF		+
C _{RSS}	Reverse Transfer Capacitance		20	30		20	30		20	30		20	30	pF		
t _d (ON)	Turn ON Delay Time		10	20		10	20		10	20		10	20	ns	V _{DS} = 25V, I _D = 5V, R _S = 50 Ω	
t _r	Rise Time		5	10		5	10		5	10		5	10	ns		+
t _d (OFF)	Turn OFF Delay Time		20	40		20	40		20	40		20	40	ns		
t _f	Fall Time		5	10		5	10		5	10		5	10	ns		

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1110 M	T0-3	100	8	16	100	5,2
ZVN 1112 M		120				
ZVN 1114 M		140				
ZVN 1115 M		150				
ZVN 1110 B	T0-39	100	8	16	6	1,27
ZVN 1112 B		120				
ZVN 1114 B		140				
ZVN 1115 B		150				
ZVN 1110 L	T0-220	100	8	16	60	4,03
ZVN 1112 L		120				
ZVN 1114 L		140				
ZVN 1115 L		150				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 1110			ZVN 1112			ZVN 1114			ZVN 1115				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
V_{DS}	Drain-Source Breakdown	100			120			140			150			V	$I_D = 5\text{mA}$, $V_{GS} = 0\text{V}$
$V_{GS(th)}$	Gate Threshold Voltage	1		3	1		3	1		3	1		3	V	$I_D = 5\text{mA}$, $V_{GS} = V_{DS}$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$
I_{DSS}	Zero Gate Voltage Drain Current			50			50			50			50	μA	$V_{DS} = BV_{DSS}$
				2			2			2			2	mA	$V_{DS} = 0,8 \cdot BV_{DSS}$, $V_{GS} = 0\text{V}$ $T_A = 125^\circ\text{C}$
$I_{D(ON)}$	ON-State Drain Current	3	6		3	6		3	6		3	6		A	$V_{DS} = 25\text{V}$, $V_{GS} = 10\text{V}$
		2	3		2	3		2	3		2	3		A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		1,2	2		1,3	2		1,4	2		1,5	2	Ω	$V_{GS} = 10\text{V}$, $I_D = 2\text{A}$
														Ω	
g_{fs}	Forward Transconductance	1,5	2		1,5	2		1,5	2		1,5	2		μ	$V_{DS} = 25\text{V}$, $I_D = 2\text{A} +$
C_{ISS}	Input Capacitance		200	300		200	300		200	300		200	300	pF	$I_{DS} = 25\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$
C_{OSS}	Common Source Output Capacitance		75	100		75	100		75	100		75	100	pF	
C_{RSS}	Reverse Transfer Capacitance		20	30		20	30		20	30		20	30	pF	
$t_{d(ON)}$	Turn ON Delay Time		10	20		10	20		10	20		20	20	ns	$V_{DS} = 25\text{V}$, $I_D = 2\text{A}$, $R_S = 50\Omega$
t_r	Rise Time		5	10		5	10		5	10		5	10	ns	
$t_{d(OFF)}$	Turn OFF Delay Time		20	40		20	40		20	40		20	40	ns	
t_f	Fall Time		5	10		5	10		5	10		5	10	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1116 M	TO-3	160	8	16	100	3,68
ZVN 1118 M		180				
ZVN 1120 M		200				
ZVN 1122 M		220				
ZVN 1116 B	TO-39	160	8	16	6	0,90
ZVN 1118 B		180				
ZVN 1120 B		200				
ZVN 1122 B		220				
ZVN 1116 L	TO-220	160	8	16	60	2,85
ZVN 1118 L		180				
ZVN 1120 L		200				
ZVN 1122 L		220				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 1116			ZVN 1118			ZVN 1120			ZVN 1122				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
B _V DSS	Drain-Source Breakdown	160			180			200			220			V	I _D = 5mA, V _{GS} = 0
V _{GS} (th)	Gate Threshold Voltage	1		3	1		3	1		3	1		3	V	I _D = 5mA, V _{GS} = V _{DS}
I _{GSS}	Gate Body Leakage			100			100			100			100	nA	V _{GS} = ± 20V, V _{DS} = 0V
I _{DSS}	Zero Gate Voltage Drain Current			50			50			50			50	μA	V _{DS} = B _V DSS
				4			4			4			4	mA	V _{DS} =0.8·B _V DSS, V _{GS} =0, T _A =125°C
I _D (ON)	ON-State Drain Current	2	3		2	3		2	3		2	3		A	V _{DS} =25V, V _{GS} = 10V
														A	
R _{DS} (ON) + r _{ds} (ON)	Static and Small Signal Drain-Source ON State Resistance		2	4		2,3	4		2,5	4		2,7	4	Ω	I _D = 1A, V _{GS} = 10V
														Ω	
g _{fs}	Forward Transconductance	1	1,5		1	1,5		1	1,5		1	1,5		u	V _{DS} = 25V, I _D = 1A
C _{ISS}	Input Capacitance		250	300		250	300		250	300		250	300	pF	V _{DS} = 25V
C _{OSS}	Common Source Output Capacitance		75	100		75	100		75	100		75	100	pF	V _{GS} = 0V
C _{RSS}	Reverse Transfer Capacitance		10	25		10	25		10	25		10	25	pF	f = 1MHz
t _d (ON)	Turn ON Delay Time		10	20		10	20		10	20		10	20	ns	
t _r	Rise Time		10	20		10	20		10	20		10	20	ns	
t _d (OFF)	Turn OFF Delay Time		20	40		20	40		20	40		20	40	ns	
t _f	Fall Time		10	20		10	20		10	20		10	20	ns	
															V _{DS} = 25V, I _D = 1A, R _S = 50 Ω

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	$V_{DS\ max}$ (V)	$I_{DS\ cont.}$ (A)	$I_{DS\ puls}$ (A)	P_D ($T_C=25^{\circ}C$) (W)	empfohlener Grenzstrom I_D (A)
ZVN 12A2 M	TO-3	20	16	32	125	16,00
ZVN 12A3 M		30				
ZVN 12A4 M		40				
ZVN 12A5 M		50				
ZVN 12A2 B	TO-39	20	8	16	6	3,60
ZVN 12A3 B		30				
ZVN 12A4 B		40				
ZVN 12A5 B		50				
ZVN 12A2 L	E-Line	20	16	32	75	12,72
ZVN 12A3 L		30				
ZVN 12A4 L		40				
ZVN 12A5 L		50				

ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}C$ unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 12A2			ZVN 12A3			ZVN 12A4			ZVN 12A5				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
V_{DSS}	Drain-Source Breakdown	20			30			40			50			V	$I_D = 10\text{ mA}, V_{GS} = 0V$
$V_{GS(th)}$	Gate Threshold Voltage	0,8		2,4	0,8		2,4	0,9		2,4	0,9		2,4	V	$I_D = 10\text{ mA}, V_{GS} = V_{DS}$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
I_{DSS}	Zero Gate Voltage Drain Current			100			100			100			100	μA	$V_{DS} = BV_{DSS}$
	Drain Current			5			5			5			5	mA	$V_{DS}=0,8 \cdot BV_{DSS}, V_{GS}=0V$ $T_A=125^{\circ}C$ +
$I_{D(ON)}$	ON-State Drain Current	10	25		10	25		10	25		10	25		A	$V_{DS} = 18V, V_{GS} = 10V$
		5	18		5	18		5	18		5	18		A	$V_{DS} = 18V, V_{GS} = 5V$
$R_{DS(ON)}$ + $r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		0,1	0,25		0,12	0,25		0,14	0,25		0,16	0,25	Ω	$I_D = 10A, V_{GS} = 10V$
			0,2	0,5		0,2	0,5		0,2	0,5		0,2	0,5	Ω	$I_D = 5A, V_{GS} = 5V$
g_{fs}	Forward Transconductance	4	6		4	6		4	6		4	6		S	$V_{DS} = 18V, I_D = 10A$ +
C_{ISS}	Input Capacitance		625	650		625	650		625	650		625	650	pF	$V_{DS} = 20V$
C_{OSS}	Common Source Output Capacitance		400	500		400	500		400	500		400	500	pF	$V_{GS} = 0V$ +
C_{RSS}	Reverse Transfer Capacitance		75	100		75	100		75	100		75	100	pF	$f = 1MHz$
$t_{d(ON)}$	Turn ON Delay Time		8	12		8	12		8	12		8	12	ns	$V_{DS} = 18V$
t_r	Rise Time		8	12		8	12		8	12		8	12	ns	$I_D = 10A$
$t_{d(OFF)}$	Turn OFF Delay Time		70	90		70	90		70	90		70	90	ns	$R_S = 50\Omega$ +
t_f	Fall Time		40	60		40	60		40	60		40	60	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1204 M	T0-3	40	16	32	125	12,5
ZVN 1206 M		60				
ZVN 1208 M		80				
ZVN 1209 M		90				
ZVN 1204 B	T0-39	40	8	16	6	2,7
ZVN 1206 B		60				
ZVN 1208 B		80				
ZVN 1209 B		90				
ZVN 1204 L	T0-220	40	16	32	75	9,6
ZVN 1206 L		60				
ZVN 1208 L		80				
ZVN 1209 L		90				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 1204			ZVN 1206			ZVN 1208			ZVN 1209				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
V_{DSS}	Drain-Source Breakdown	40			60			80			90			V	$I_D = 10\text{ mA}, V_{GS} = 0\text{V}$
$V_{GS(th)}$	Gate Threshold Voltage	0,8		2,4	0,8		2,4	0,8		2,4	0,8		2,4	V	$I_D = 10\text{ mA}, V_{DS} = V_{GS}$
I_{GSS}	Gate Body Leakage		1	100		1	100		1	100		1	100	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
I_{DSS}	Zero Gate Voltage Drain Current			100			100			100			100	μA	$V_{DS} = BV_{DSS}, V_{GS} = 0\text{V}$
				1			1			1			1	mA	$V_{DS}=0,8 \cdot BV_{DSS}, V_{GS}=0\text{V}, T_A=125^\circ\text{C}$
$I_{D(ON)}$	ON-State Drain Current	5	10		5	10		5	10		5	10		A	$V_{GS} = 5\text{V}, V_{DS} = 25\text{V}$
		10	20		10	20		10	20		10	20		A	$V_{GS} = 10\text{V}, V_{DS} = 25\text{V}$
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		0,4	0,6		0,4	0,6		0,4	0,6		0,4	0,6	Ω	$V_{GS} = 5\text{V}, I_D = 2\text{A}$
			0,25	0,4		0,25	0,4		0,25	0,4		0,25	0,4	Ω	$V_{GS} = 10\text{V}, I_D = 10\text{mA}$
g_{fs}	Forward Transconductance	4	4,5		4	4,5		4	4,5		4	4,5		μ	$V_{DS} = 25\text{V}, I_D = 8\text{A},$
C_{ISS}	Input Capacitance		600	650		600	650		600	650		600	650	pF	$V_{DS} = 25\text{V},$ $V_{GS} = 0\text{V},$ $f = 1\text{MHz}$
C_{OSS}	Common Source Output Capacitance		300	350		300	350		300	350		300	350	pF	
C_{RSS}	Reverse Transfer Capacitance		50	75		50	75		50	75		50	75	pF	
$t_{d(ON)}$	Turn ON Delay Time		8	12		8	12		8	12		8	12	ns	$V_{DS} = 25\text{V}$ $I_D = 10\text{A}$ $R_S = 50\ \Omega$
t_r	Rise Time		8	12		8	12		8	12		8	12	ns	
$t_{d(OFF)}$	Turn OFF Delay Time		70	90		70	90		70	90		70	90	ns	
t_f	Fall Time		40	60		40	60		40	60		40	60	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1210 M	TO-3	100	16	32	125	9,13
ZVN 1212 M		120				
ZVN 1214 M		140				
ZVN 1215 M		150				
ZVN 1210 B	TO-39	100	8	16	6	2,00
ZVN 1212 B		120				
ZVN 1214 B		140				
ZVN 1215 B		150				
ZVN 1210 L	TO-220	100	16	32	75	7,06
ZVN 1212 L		120				
ZVN 1214 L		140				
ZVN 1215 L		150				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 1210			ZVN 1212			ZVN 1214			ZVN 1215				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
BV_{DSS}	Drain-Source Breakdown	100			120			140			150			V	$I_D = 10\text{ mA}, V_{GS} = 0V$
$V_{GS(th)}$	Gate Threshold Voltage	1,0		3,0	1,0		3,0	1,0		3,0	1,0		3,0	V	$I_D = 10mA, V_{GS} = V_{DS}$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
I_{DSS}	Zero Gate Voltage Drain Current			100			100			100			100	μA	$V_{DS} = BV_{DSS}, V_{GS} = 0\text{ V}$
				5			5			5			5	mA	$V_{DS}=0,8 \cdot BV_{DSS}, V_{GS}=0, T_A=125^{\circ}C$
$I_{D(ON)}$	ON-State Drain Current	5	18		5	18		5	18		5	18		A	$V_{DS} = 25V, V_{GS} = 10V$
														A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance			0,75			0,75			0,75			0,75	Ω	$I_D = 5A, V_{GS} = 10V$
														Ω	
g_{fs}	Forward Transconductance	1,5	2,5		1,5	2,5		1,5	2,5		1,5	2,5		μ	$V_{DS}=25V, I_D = 2A$
C_{ISS}	Input Capacitance		550	600		550	600		550	600		550	600	pF	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$
C_{OSS}	Common Source Output Capacitance		200	250		200	250		200	250		200	250	pF	
C_{RSS}	Reverse Transfer Capacitance		15	25		15	25		15	25		15	25	pF	
$t_{d(ON)}$	Turn ON Delay Time		8	12		8	12		8	12		8	12	ns	
t_r	Rise Time		6	10		6	10		6	10		6	10	ns	$V_{DS} = 25V, I_D = 5A, R_S = 50\Omega$
$t_{d(OFF)}$	Turn OFF Delay Time		60	80		60	80		60	80		60	80	ns	
t_f	Fall Time		30	40		30	40		30	40		30	40	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1216 M	T0-3	160	16	32	125	6,45
ZVN 1218 M		180				
ZVN 1220 M		200				
ZVN 1222 M		220				
ZVN 1216 B	T0-39	160	8	16	6	1,42
ZVN 1218 B		180				
ZVN 1220 B		200				
ZVN 1222 B		220				
ZVN 1216 L	T0-220	160	16	32	75	5,00
ZVN 1218 L		180				
ZVN 1220 L		200				
ZVN 1222 L		220				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 1216			ZVN 1218			ZVN 1220			ZVN 1222				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
$B_{V_{DSS}}$	Drain-Source Breakdown	160			180			200			220			V	$I_D = 100\text{ mA}, V_{GS} = 0\text{V}$
$V_{GS(th)}$	Gate Threshold Voltage	1		3	1		3	1		3	1		3	V	$I_D = 10\text{ mA}, V_{DS} = V_{GS}$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
I_{DSS}	Zero Gate Voltage Drain Current			100			100			100			100	μA	$V_{DS} = B_{V_{DSS}}, V_{GS} = 0\text{V}$
				4			4			4			4	mA	$V_{DS} = 0,8 \cdot B_{V_{DSS}}, V_{GS} = 0\text{V}, T_A = 125^\circ\text{C}$
$I_{D(ON)}$	ON-State Drain Current	6	12		6	12		6	12		6	12		A	$V_{DS} = 25\text{V}, V_{GS} = 10\text{V}$
														A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		0,5	1,5		0,5	1,5		0,7	1,5		0,8	1,5	Ω	$I_D = 2\text{A}, V_{GS} = 10\text{V}$
														Ω	
g_{fs}	Forward Transconductance	2	3,5		2	3,4		2	3,3		2	3,2		mS	$V_{DS} = 25\text{V}, I_D = 5\text{A}$
C_{ISS}	Input Capacitance		550	600		550	600		550	600		550	600	pF	$V_{DS} = 25\text{V}$
C_{OSS}	Common Source Output Capacitance		200	250		200	250		200	250		200	250	pF	$V_{GS} = 0\text{V},$
C_{RSS}	Reverse Transfer Capacitance		12	20		12	20		12	20		12	20	pF	$f = 1\text{MHz}$
$t_{d(ON)}$	Turn ON Delay Time		8	12		8	12		8	12		8	12	ns	$V_{DS} = 25\text{V},$ $I_D = 2\text{A},$ $R_S = 50\ \Omega$
t_r	Rise Time		8	12		8	12		8	12		8	12	ns	
$t_{d(OFF)}$	Turn OFF Delay Time		50	70		50	70		50	70		50	70	ns	
t_f	Fall Time		20	30		20	30		20	30		20	30	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1304 B	TO-39	40	1,5	3	5	0,52
ZVN 1306 B		60				
ZVN 1308 B		80				
ZVN 1309 B		90				
ZVN 1304 A	E-Line	40	1	2	1	0,23
ZVN 1306 A		60				
ZVN 1308 A		80				
ZVN 1309 A		90				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 1304			ZVN 1306			ZVN 1308			ZVN 1309				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
BV _{DSS}	Drain-Source Breakdown	40			60			80			90			V	I _D = 1mA, V _{GS} = 0V
V _{GS(th)}	Gate Threshold Voltage	0,8		2,4	0,8		2,4	0,8		2,4	0,8		2,4	V	I _D = 1mA, V _{GS} = V _{DS}
I _{GSS}	Gate Body Leakage			100			100			100			100	nA	V _{GS} = ± 20V, V _{DS} = 0V
I _{DSS}	Zero Gate Voltage Drain Current			1			1			1			1	µA	V _{DS} = BV _{DSS} , V _{GS} = 0V
				50			50			50			50	µA	V _{DS} =0,8·BV _{DSS} , V _{GS} =0V, T _A =125°C
I _{D(ON)}	ON-State Drain Current	0,25	0,6		0,25	0,6		0,25	0,6		0,25	0,6		A	V _{DS} = 25V, V _{GS} = 5V
		0,5	1,4		0,5	1,4		0,5	1,4		0,5	1,4		A	V _{DS} = 25V, V _{GS} = 10V
R _{DS(ON)} + r _{ds(ON)}	Static and Small Signal Drain-Source ON State Resistance			15			15			15			15	Ω	I _D = 50mA, V _{GS} = 5V
			4	10		5	10		6	10		7	10	Ω	I _D = 500mA, V _{GS} = 10V
g _{fs}	Forward Transconductance	200	250		200	250		200	250		200	250		mS	I _D = 500mA, V _{DS} = 25V+
C _{ISS}	Input Capacitance		27	30		27	30		27	30		27	30	pF	V _{DS} = 25V V _{GS} = 0V f = 1MHz
C _{OSS}	Common Source Output Capacitance		13	15		13	15		13	15		13	15	pF	
C _{RSS}	Reverse Transfer Capacitance		3	5		3	5		3	5		3	5	pF	
t _{d(ON)}	Turn ON Delay Time		3	5		3	5		3	5		3	5	ns	V _{DS} = 25V I _D = 500mA R _S = 50 Ω
t _r	Rise Time		5	7		5	7		5	7		5	7	ns	
t _{d(OFF)}	Turn OFF Delay Time		4	6		4	6		4	6		4	6	ns	
t _f	Fall Time		5	7		5	7		5	7		5	7	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1310 B	T0-39	100	1,5	3	5	0,37
ZVN 1312 B		120				
ZVN 1314 B		140				
ZVN 1315 B		150				
ZVN 1310 A	E-Line	100	1	2	1	0,16
ZVN 1312 A		120				
ZVN 1314 A		140				
ZVN 1315 A		150				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 1310			ZVN 1312			ZVN 1314			ZVN 1315				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
BV_{DSS}	Drain-Source Breakdown	100			120			140			150			V	$I_D = 1mA, V_{GS} = 0V$
$V_{GS(th)}$	Gate Threshold Voltage	1		3	1		3	1		3	1		3	V	$V_{DS} = V_{GS}, I_D = 1mA$
I_{GSS}	Gate Body Leakage			100			100			100			100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
I_{DSS}	Zero Gate Voltage Drain Current			10			10			10			10	μA	$V_{DS} = BV_{DSS}, V_{GS} = 0V$
				500			500			500			500	μA	$V_{DS} = 0,8 \cdot BV_{DSS}, T_A = 125^\circ C$ $V_{GS} = 0V$
$I_{D(ON)}$	ON-State Drain Current	250	500		250	500		250	500		250	500		mA	$V_{DS} = 10V, V_{GS} = 10V$
														A	
$R_{DS(ON)} + r_{ds(ON)}$	Static and Small Signal Drain-Source ON State Resistance		10	20		12	20		14	20		16	20	Ω	$V_{GS} = 10V, I_D = 200mA$
g_{fs}	Forward Transconductance			30			30			30			30	Ω	$V_{GS} = 5V, I_D = 30mA$
C_{ISS}	Input Capacitance	125	180		125	180		125	180		125	180		mS	$V_{DS} = 25V, I_D = 250mA^+$
C_{OSS}	Common Source Output Capacitance		25	30		25	30		25	30		25	30	pF	$V_{DS} = 25V$ $V_{GS} = 0V$ $f = 1MHz$
C_{RSS}	Reverse Transfer Capacitance		10	15		10	15		10	15		10	15	pF	
$f_{d(ON)}$	Turn ON Delay Time		2	5		2	5		2	5		2	5	pF	
$t_{d(ON)}$	Turn ON Delay Time		3	5		3	5		3	5		3	5	ns	$V_{DS} = 25V$ $I_D = 200mA$ $R_S = 50\Omega$
t_r	Rise Time		5	7		5	7		5	7		5	7	ns	
$t_{d(OFF)}$	Turn OFF Delay Time		4	6		4	6		4	6		4	6	ns	
t_f	Fall Time		4	6		4	6		4	6		4	6	ns	

+ sample test

GRENZDATEN

VORLÄUFIGE DATEN

BESTELL- BEZEICHNUNG	GEHÄUSE	V _{DS} max (V)	I _{DS} cont. (A)	I _{DS} puls (A)	P _D (T _C =25°C) (W)	empfohlener Grenzstrom I _D (A)
ZVN 1316 B	T0-39	160	1,5	3	5	0,26
ZVN 1318 B		180				
ZVN 1320 B		200				
ZVN 1322 B		220				
ZVN 1316 A	E-Line	160	1	2	1	0,12
ZVN 1318 A		180				
ZVN 1320 A		200				
ZVN 1322 A		220				

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise specified)

SYMBOL	PARAMETER	DEVICE												UNIT	TEST CONDITIONS
		ZVN 1316			ZVN 1318			ZVN 1320			ZVN 1322				
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
BV _{DSS}	Drain-Source Breakdown	160			180			200			220			V	I _D = 1mA, V _{GS} = 0V
V _{GS(th)}	Gate Threshold Voltage	1		3	1		3	1		3	1		3	V	I _D = 1mA, V _{GS} = V _{DS}
I _{GSS}	Gate Body Leakage			100			100			100			100	nA	V _{GS} = ± 20V, V _{DS} = 0V
I _{DSS}	Zero Gate Voltage Drain Current			10			10			10			10	μA	V _{DS} = BV _{DSS} , V _{GS} = 0V
				1			1			1			1	mA	V _{DS} =0,8·BV _{DSS} , V _{GS} =0V ⁺ T _A =125°C
I _{D(ON)}	ON-State Drain Current	0,2	0,6		0,2	0,6		0,2	0,6		0,2	0,6		A	V _{DS} = 25V, V _{GS} = 10V
														A	
R _{DS(ON)} + r _{ds(ON)}	Static and Small Signal Drain-Source ON State Resistance		20	40		20	40		20	40		20	40	Ω	I _D = 100mA, V _{GS} = 10V
														Ω	
g _{fs}	Forward Transconductance	75	90		75	90		75	90		75	90		mS	I _D = 125mA, V _{DS} = 25V ⁺
C _{ISS}	Input Capacitance		25	30		25	30		25	30		25	30	pF	V _{DS} = 25V V _{GS} = 0V f = 1MHz
C _{OSS}	Common Source Output Capacitance		15	18		15	18		15	18		15	18	pF	
C _{RSS}	Reverse Transfer Capacitance		2	5		2	5		2	5		2	5	pF	
t _{d(ON)}	Turn ON Delay Time		3	5		3	5		3	5		3	5	ns	V _{DS} = 25V, I _D = 100mA R _S = 50 Ω
t _r	Rise Time		5	7		5	7		5	7		5	7	ns	
t _{d(OFF)}	Turn OFF Delay Time		4	6		4	6		4	6		4	6	ns	
t _f	Fall Time		4	6		4	6		4	6		4	6	ns	

+ sample test