UNION CARBIDE

ELECTRONICS

FIELD EFFECT TRANSISTORS N-CHANNEL • SILICON • EPITAXIAL 2N5103 • 2N5104 • 2N5105

Low noise and capacitance • high figure of merit • high input impedance • high frequency response • radiation immunity • symmetrical devices for low level choppers • data switches • multiplexers • VHF RF amplifiers • IF amplifiers and low noise D.C. amplifiers • high reliability • silicon epitaxial • planar construction

MAXIMUM RATINGS

@ 25°C (UNLESS OTHERWISE NOTED)

	SYM.	2N5103 2N5104 2N5105	Units
Drain to Gate Voltage	V_{DGO}	25	V
Source to Gate Voltage	V_{SGO}	25	V
Gate Current	I_G	10	mA
Total Device Dissipation @ Free Air Temperature	P_D	300	mW
Linear Derating		1.7	mW/°C
Storage Temperature	T_S	−65 to +200	°C

ELECTRICAL CHARACTERISTICS

@ 25°C (UNLESS OTHERWISE NOTED)

	SYM.	2N5103 min.	2N5103 max.	2N5104 min.	2N5104 max.	2N5105 min.	2N5105 max.	Units	CONDITIONS
Gate Breakdown Voltage	BV_{GSS}	25		25		25		V	I_g = 10 μA, V_{DS} = 0
Total Gate Leakage Current	I_{GSS}		100		100		100	pA	V_{GS} = 15 V, V_{DS} = 0
Total (150°C) Gate Leakage Current	I_{GSS}		200		200		200	nA	V_{GS} = 15 V, V_{DS} = 0 T = +150°C
Drain Saturation Current*	I_{DSS}	1.0	8.0	2.0	6.0	5.0	15	mA	V_{DS} = 15 V, V_{GS} = 0
Gate-Source Cut-Off Voltage	$V_{GS(off)}$	0.5	4.0	0.5	4.0	0.5	4.0	V	V_{DS} = 15 V, I_D = 1 nA
Transconductance*	$\|Y_{fs}\|$	2000	8000	3500	7500	5000	10,000	μmhos	V_{DS} = 15 V, V_{GS} = 0, f = 1 KHz
Output Admittance*	$\|Y_{os}\|$		100		100		100	μmhos	V_{DS} = 15 V, V_{GS} = 0 f = 1 KHz
Small Signal, Common Source, Short Circuit, Reverse Transfer Capacitance	C_{rss}		1		1		1	pf	V_{DS} = 15 V, V_{GS} = 0 f = 1 MHz
Small Signal, Common Source, Input Capacitance (Output Shorted)	C_{iss}		5		5		5	pf	V_{DS} = 15 V, V_{GS} = 0 f = 1 MHz
Forward Transadmittance	$\|Y_{fs}\|$	1500	7000	2000	6000	3500	7500	μmhos	V_{DS} = 15 V, V_{GS} = 0 f = 100 MHz

ELECTRICAL CHARACTERISTICS

@ 25°C (UNLESS OTHERWISE NOTED)

	SYM.	2N5103 min.	2N5103 max.	2N5104 min.	2N5104 max.	2N5105 min.	2N5105 max.	Units	CONDITIONS
Noise Figure	NF		1.5		1.5		1.5	dB	V_{DS} = 15 V, V_{GS} = 0, f = 100 Hz, R_g = 100 KΩ
Noise Voltage	e_n		100		50		40	nV/$\sqrt{\sim}$	V_{DS} = 15 V, V_{GS} = 0, f = 10 Hz

*Pulsed Measurement Required, TW ≈ 100 msec, Duty Cycle ≤ 10%

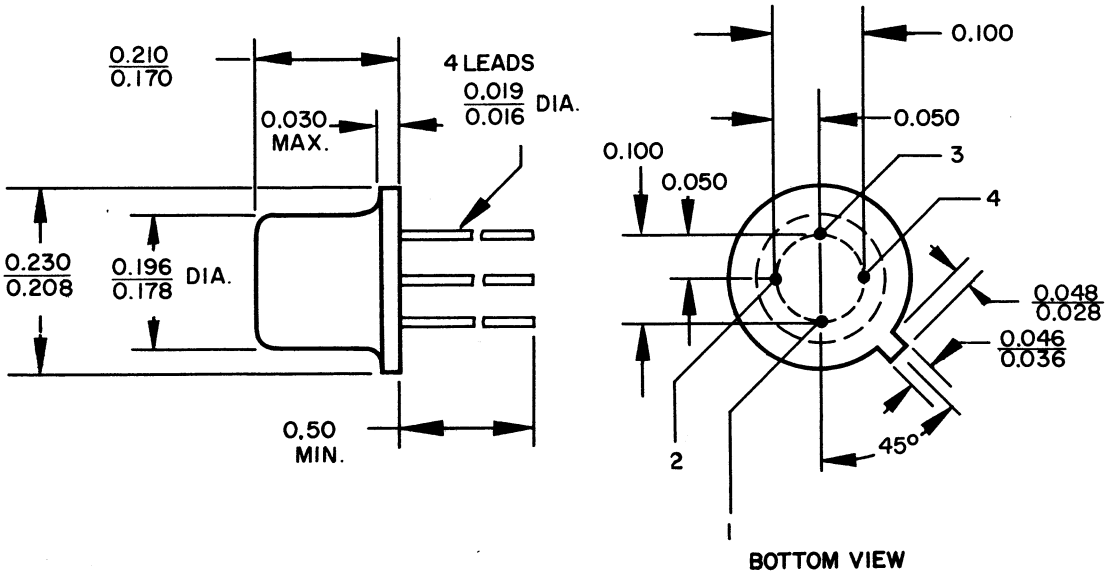
MECHANICAL DATA

Case: JEDEC TO-72 (4 Lead TO-18)

TERMINAL CONNECTIONS

(All dimensions are in inches unless otherwise noted)

Lead 1, Source
Lead 2, Drain
Lead 3, Gate
Lead 4, Case



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