

# MA110

## Silicon Epitaxial Planar Type

### Switching

#### ■ Features

- High density mounting by "S-Mini type" package is possible.
- Fast  $t_{rr}$
- Small  $C_t$

#### ■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Value	Unit
Reverse Voltage (DC)	$V_R$	40	V
Peak Reverse Voltage	$V_{RM}$	40	V
Average Forward Current	$I_{F(AV)}$	100	mA
Peak Forward Current	$I_{FM}$	225	mA
Non-Repetitive Peak Forward Surge Current	$I_{FSM}^*$	500	mA
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

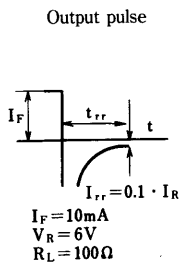
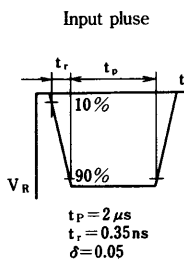
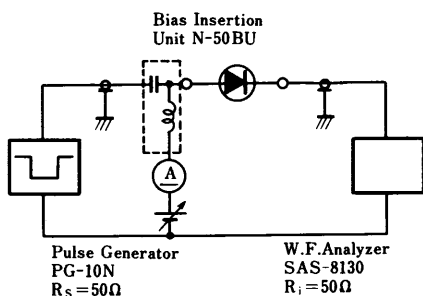
\* $t=1\text{s}$

#### ■ Electrical Characteristics ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	$I_R$	$V_R=35\text{V}$			100	nA
Forward Voltage (DC)	$V_F$	$I_F=100\text{mA}$		0.95	1.2	V
Reverse Voltage (DC)	$V_R$	$I_R=100\mu\text{A}$	40			V
Terminal Capacitance	$C_t$	$V_R=0, f=1\text{MHz}$		0.6	1.2	pF
Reverse Recovery Time	$t_{rr}^*$	$I_F=10\text{mA}, V_R=6\text{V}$ $I_{rr}=0.1 \cdot I_R, R_L=100\Omega$			3	ns

© Input and output frequency of ratings: 100MHz

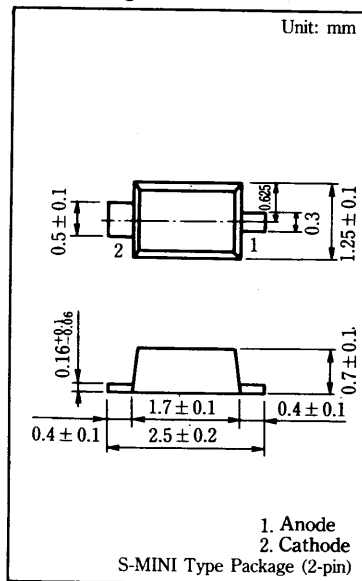
\* $t_{rr}$  measuring circuit



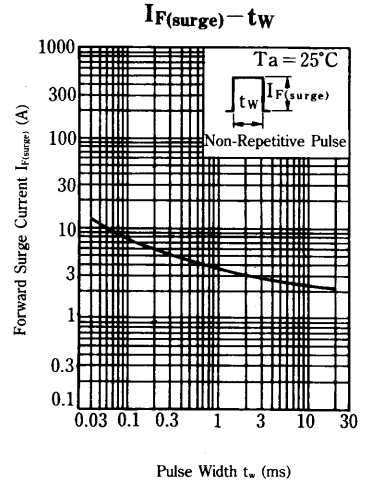
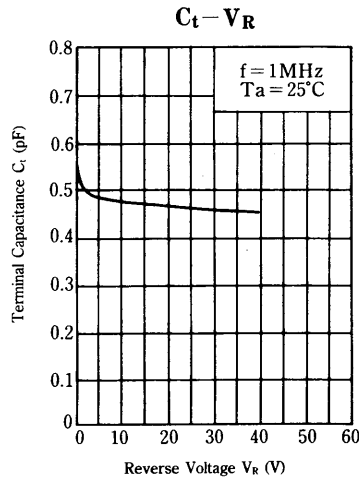
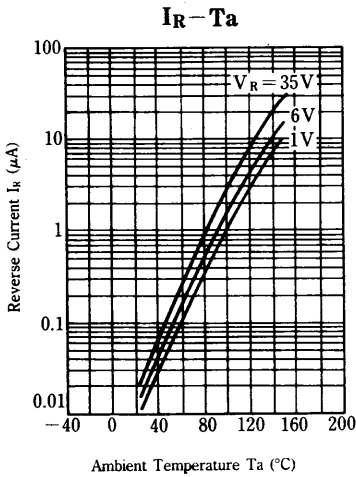
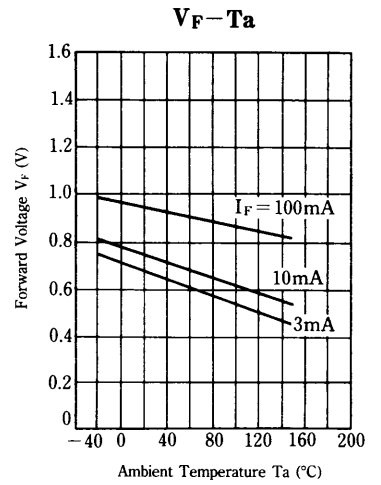
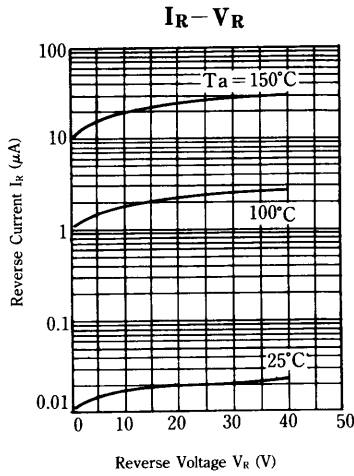
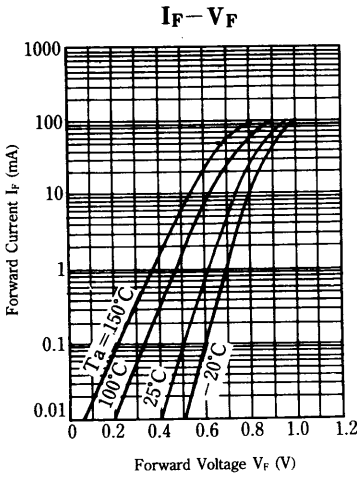
#### ■ Marking Symbol



#### ■ Package Dimensions



Marking Symbol : 1A



# MA111

## Silicon Epitaxial Planar Type

### Switching

#### ■ Features

- High density mounting by "S-Mini type" package is possible.
- Fast  $t_{rr}$
- Small  $C_t$
- High breakdown voltage ( $V_R=80V$ )

#### ■ Absolute Maximum Ratings ( $T_a=25^\circ C$ )

Item	Symbol	Value	Unit
Reverse Voltage (DC)	$V_R$	80	V
Peak Reverse Voltage	$V_{RM}$	80	V
Average Forward Current	$I_{F(AV)}$	100	mA
Peak Forward Current	$I_{FM}$	225	mA
Non-Repetitive Peak Forward Surge Current	$I_{FSM}^*$	500	mA
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ C$

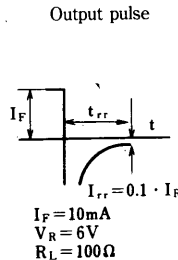
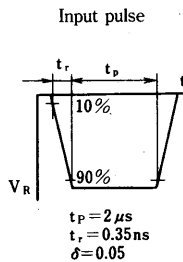
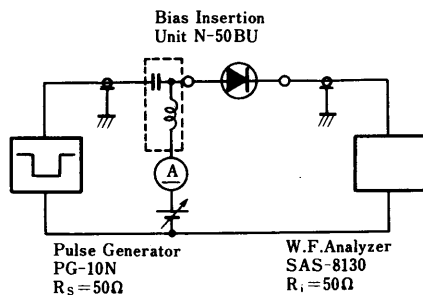
\* $t=1s$

#### ■ Electrical Characteristics ( $T_a=25^\circ C$ )

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	$I_R$	$V_R=75V$			100	nA
Forward Voltage (DC)	$V_F$	$I_F=100mA$		0.95	1.2	V
Reverse Voltage (DC)	$V_R$	$I_R=100\mu A$	80			V
Terminal Capacitance	$C_t$	$V_R=0, f=1MHz$		0.6	1.2	pF
Reverse Recovery Time	$t_{rr}^*$	$I_F=10mA, V_R=6V$ $I_{rr}=0.1 \cdot I_R, R_L=100\Omega$			3	ns

© Input and output frequency of ratings: 100MHz

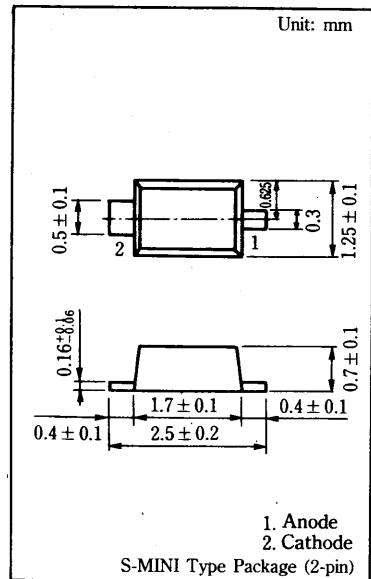
\* $t_{rr}$  measuring circuit



#### ■ Marking Symbol



#### ■ Package Dimensions



Marking Symbol : 1B

# MA141A, MA142A

## Silicon Epitaxial Planar Type

### Switching

#### ■ Features

- High density mounting by "S-Mini type" package is possible.

#### ■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA141A	40	V
	MA142A	80	
Peak Reverse Voltage	MA141A	40	V
	MA142A	80	
Forward Current (DC)	I <sub>F</sub>	100	mA
Peak Forward Current	I <sub>FM</sub>	225	mA
Non-Repetitive Peak Forward Surge Current	I <sub>FSM</sub> *	500	mA
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 ~ +150	°C

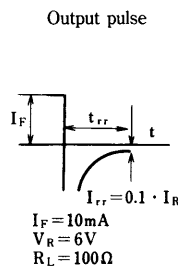
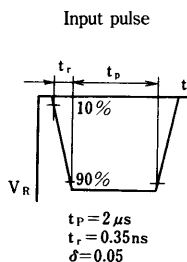
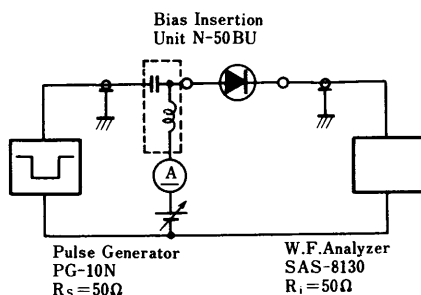
\*t=1s

#### ■ Electrical Characteristics (Ta=25°C)

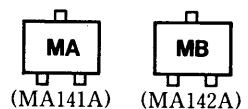
Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA141A	V <sub>R</sub> = 35V			100	nA
	MA142A	V <sub>R</sub> = 75V			100	
Forward Voltage (DC)	V <sub>F</sub>	I <sub>F</sub> = 100mA			1.2	V
Reverse Voltage (DC)	MA141A	I <sub>R</sub> = 100μA	40			V
	MA142A		80			
Terminal Capacitance	C <sub>t</sub>	V <sub>R</sub> = 0, f = 1MHz			15	pF
Reverse Recovery Time	t <sub>rr</sub> *	I <sub>F</sub> = 10mA, V <sub>R</sub> = 6V I <sub>rr</sub> = 0.1 · I <sub>R</sub> , R <sub>L</sub> = 100Ω			10	ns

© Input and output frequency of ratings: 100MHz

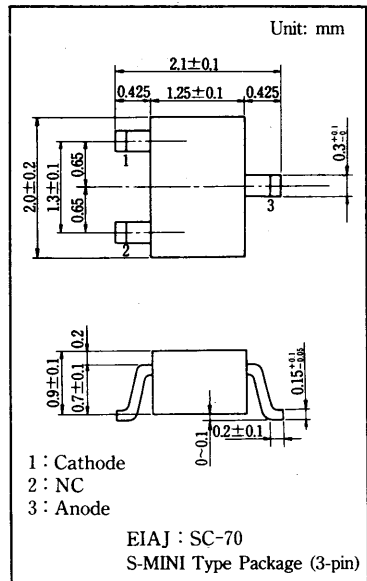
\*t<sub>rr</sub> measuring circuit



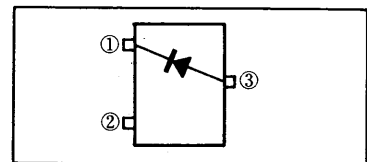
#### ■ Marking Symbol



#### ■ Package Dimensions

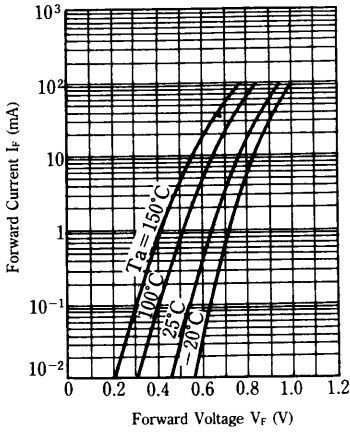


#### ■ Inner Circuit

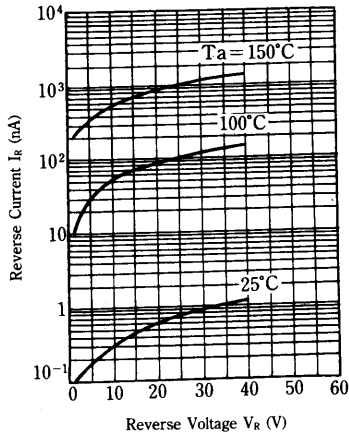


## MA141A Characteristics

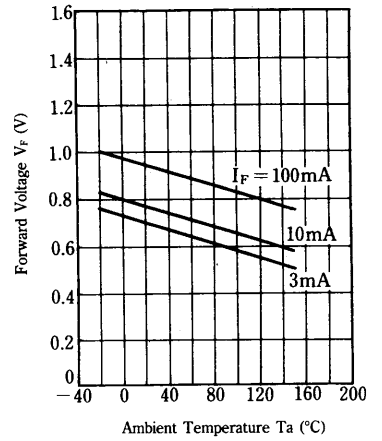
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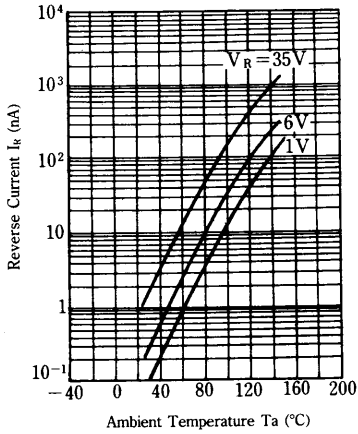
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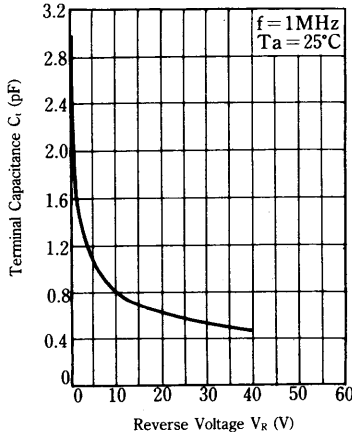
### $V_F - T_a$



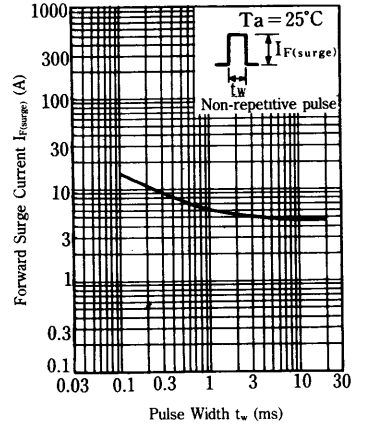
### $I_R - T_a$



### $C_t - V_R$

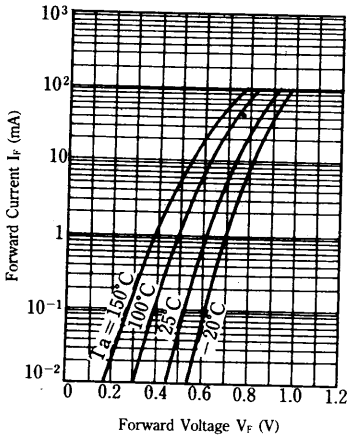


### $I_F(\text{surge}) - t_w$

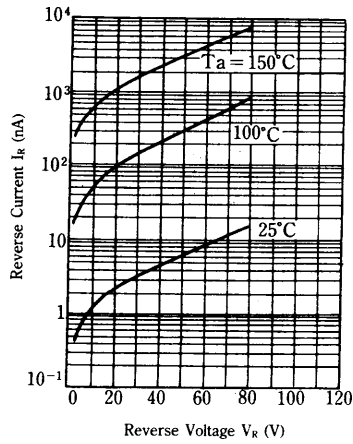


## MA142A Characteristics

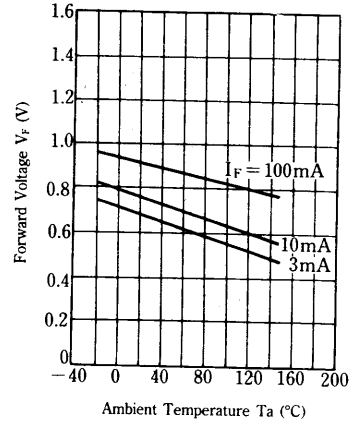
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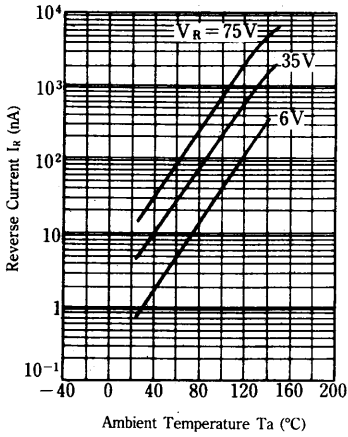
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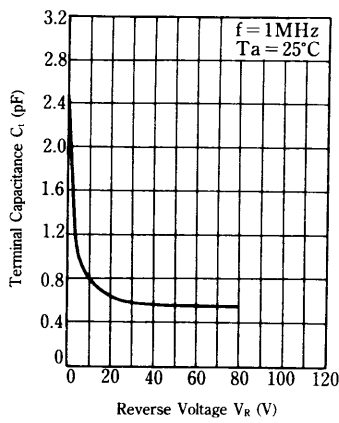
### $V_F - T_a$



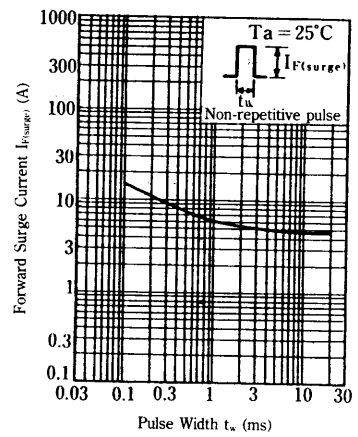
### $I_R - T_a$



### $C_t - V_R$



### $I_F(\text{surge}) - t_w$



# MA141K, MA142K

Silicon Epitaxial Planar Type

Switching

### Features

- High density mounting by "S-Mini type" package is possible.
- Fast  $t_{rr}$
- Small  $C_i$

### Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA141K	40	V
	MA142K	80	
Peak Reverse Voltage	MA141K	40	V
	MA142K	80	
Forward Current (DC)	$I_F$	100	mA
Peak Forward Current	$I_{FM}$	225	mA
Non-Repetitive Peak Forward Surge Current	$I_{FSM}^*$	500	mA
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

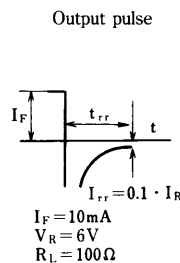
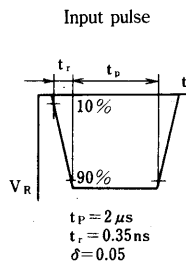
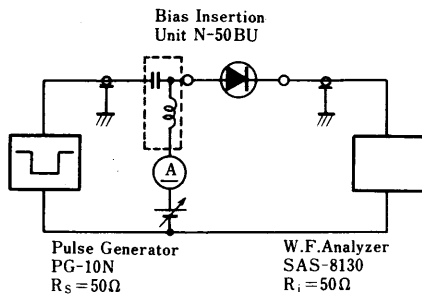
\* $t=1s$

### Electrical Characteristics ( $T_a=25^\circ\text{C}$ )

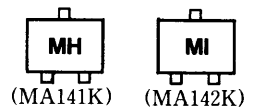
Item	System	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA141K	$V_R=35V$			100	nA
	MA142K	$V_R=75V$			100	
Forward Voltage (DC)		$I_F=100mA$			1.2	V
Reverse Voltage (DC)	MA141K	$I_R=100\mu A$	40			V
	MA142K		80			
Terminal Capacitance	MA141K	$V_R=0, f=1MHz$		0.9	2	pF
	MA142K				2	
Reverse Recovery Time		$I_F=10mA, V_R=6V$ $I_{rr}=0.1 \cdot I_R, R_L=100\Omega$			3	ns

© Input and output frequency of ratings: 100MHz

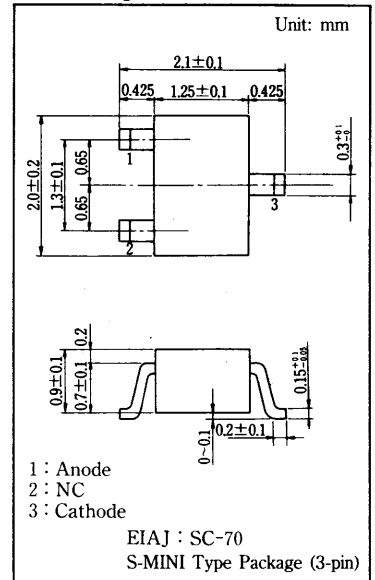
\* $t_{rr}$  measuring circuit



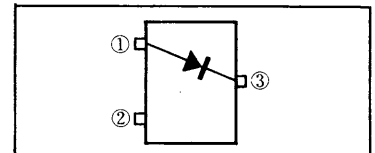
### Marking Symbol



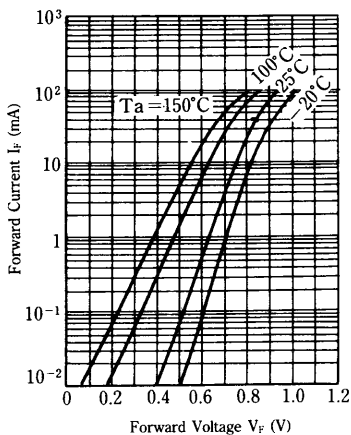
### Package Dimensions



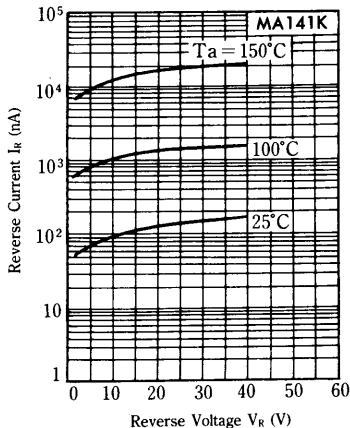
### Inner Circuit



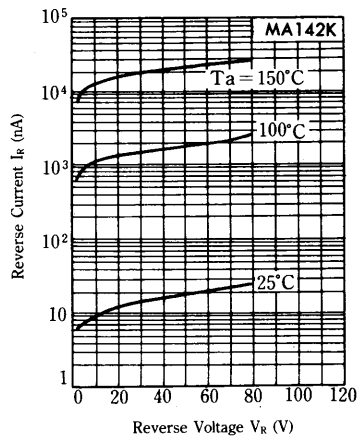
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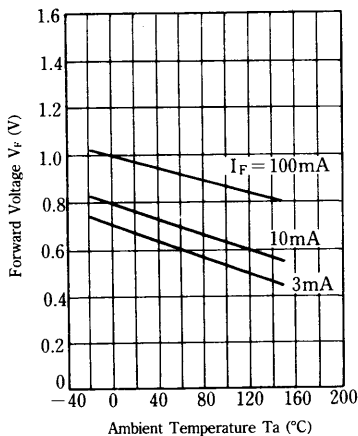
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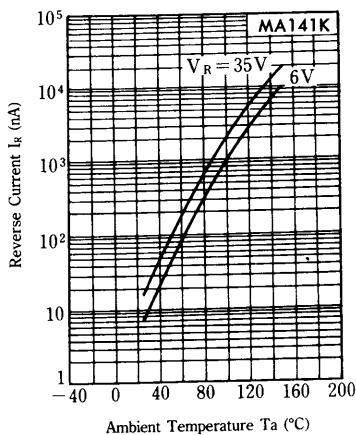
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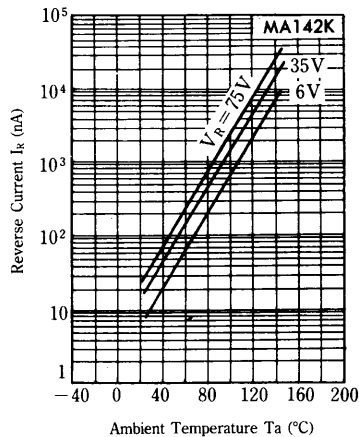
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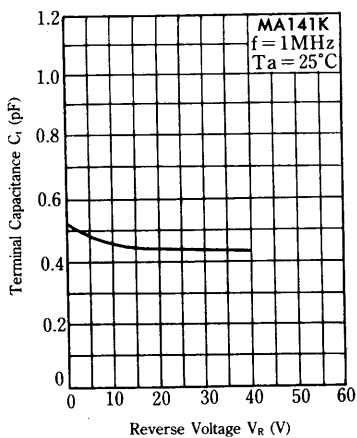
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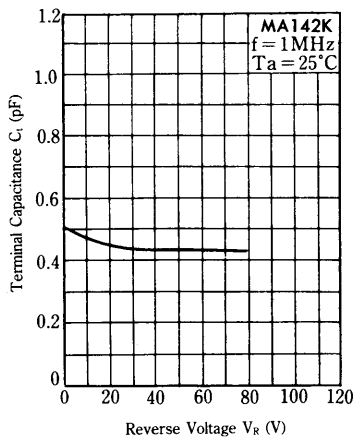
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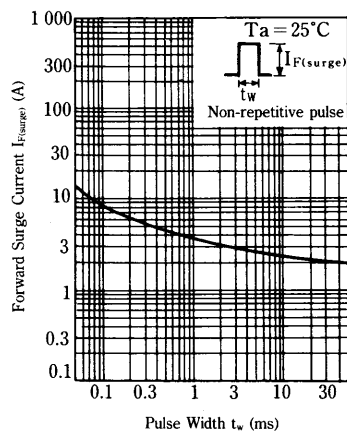
### $C_t - V_R$



### $C_t - V_R$



### $I_F(\text{surge}) - t_w$





# MA141WA, MA142WA

## Silicon Epitaxial Planar Type

### Switching

#### ■ Features

- High density mounting by two elements in "S-Mini type" package is possible.

#### ■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA141WA	40	V
	MA142WA	80	
Peak Reverse Voltage	MA141WA	40	V
	MA142WA	80	
Forward Current (DC)	Double	150	mA
	Single	100	
Peak Forward Current	Double	340	mA
	Single	225	
Non-Repetitive Peak Forward Surge Current	Double	750	mA
	Single	500	
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 ~ +150	°C

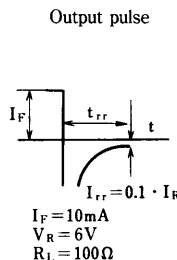
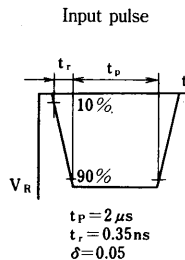
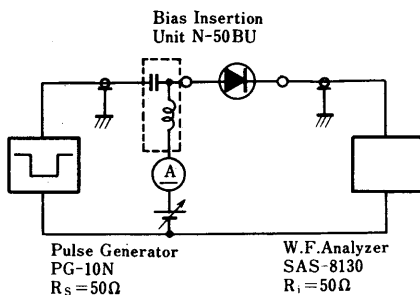
\*t=1s

#### ■ Electrical Characteristics (Ta=25°C)

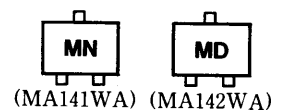
Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA141WA	V <sub>R</sub> =35V			100	nA
	MA142WA	V <sub>R</sub> =75V			100	
Forward Voltage (DC)	V <sub>F</sub>	I <sub>F</sub> =100mA			1.2	V
Reverse Voltage (DC)	MA141WA	I <sub>R</sub> =100μA	40			V
	MA142WA		80			
Terminal Capacitance	C <sub>t</sub>	V <sub>R</sub> =0, f=1MHz			15	pF
Reverse Recovery Time	t <sub>rr</sub> *	I <sub>F</sub> =10mA, V <sub>R</sub> =6V I <sub>rr</sub> =0.1 · I <sub>R</sub> , R <sub>L</sub> =100Ω			10	ns

© Input and output frequency of ratings: 100MHz

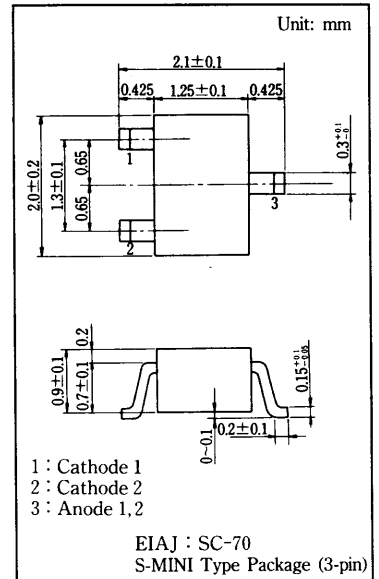
\*t<sub>rr</sub> measuring circuit



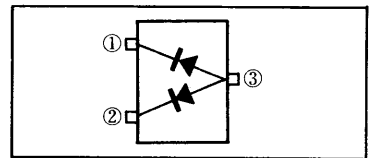
#### ■ Marking Symbol

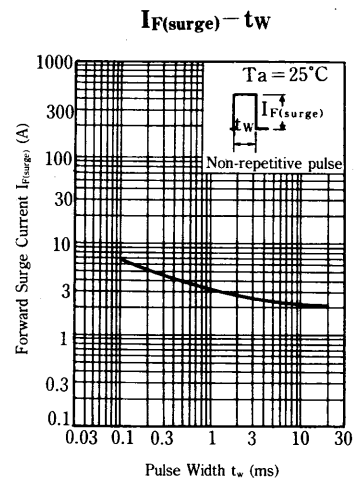
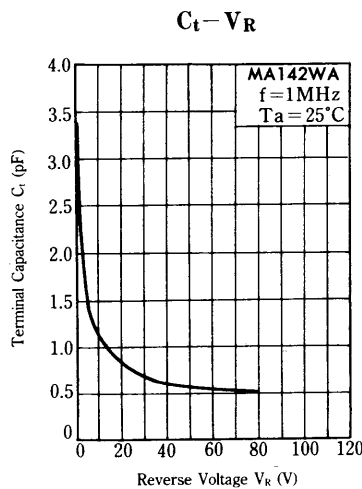
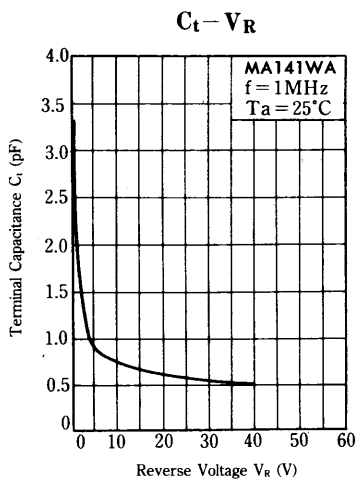
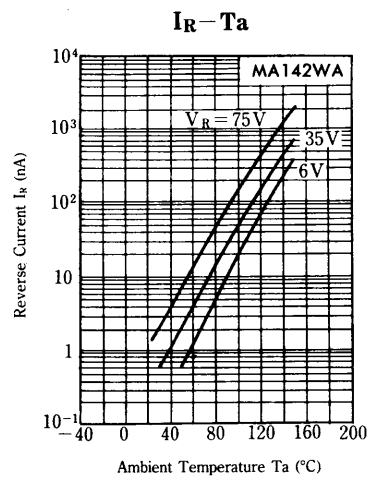
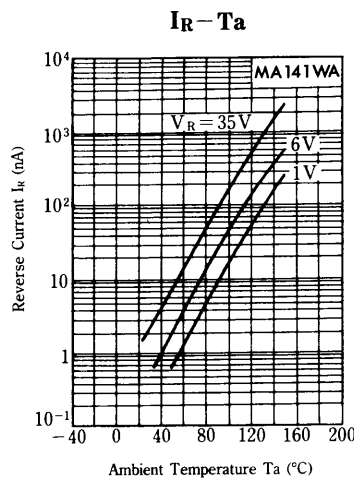
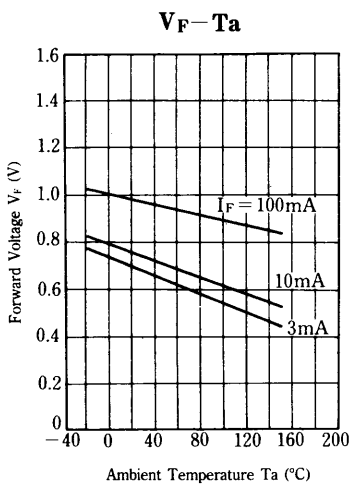
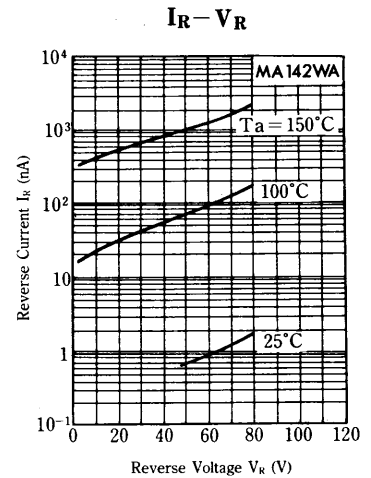
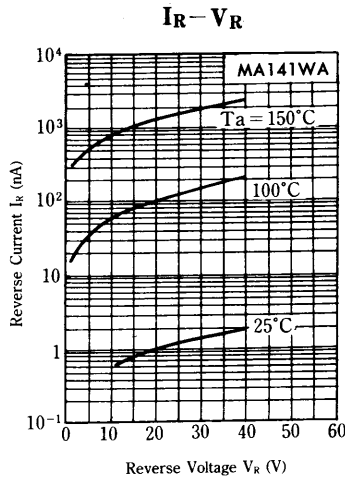
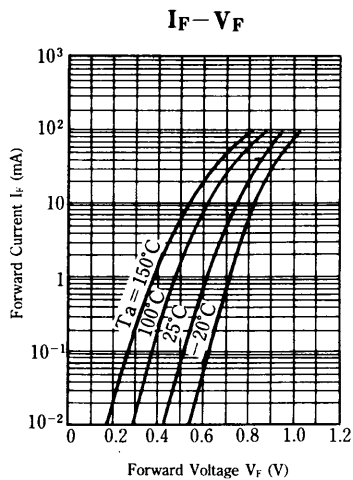


#### ■ Package Dimensions



#### ■ Inner Circuit





# MA141WK, MA142WK

## Silicon Epitaxial Planar Type

### Switching

#### ■ Features

- High density mounting by two elements built-in "Mini type" package is possible.
- Fast  $t_{rr}$
- Small  $C_i$

#### ■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA141WK	40	V
	MA142WK	80	
Peak Reverse Voltage	MA141WK	40	V
	MA142WK	80	
Forward Current (DC)	Double	150	mA
	Single	100	
Peak Forward Current	Double	340	mA
	Single	225	
Non-Repetitive Peak Forward Surge Current	Double	750	mA
	Single	500	
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55 ~ +150	°C

\*t=1s

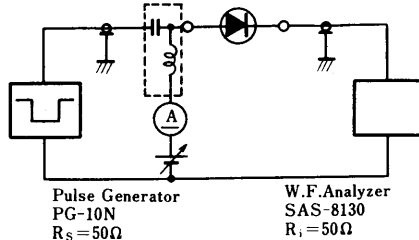
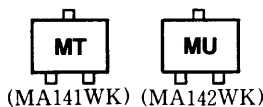
#### ■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA141WK	$V_R = 35V$			100	nA
	MA142WK	$V_R = 75V$			100	
Forward Voltage (DC)	$V_F$	$I_F = 100mA$			1.2	V
Reverse Voltage (DC)	MA141WK	$I_R = 100\mu A$	40			V
	MA142WK		80			
Terminal Capacitance	$C_i$	$V_R = 0, f = 1MHz$			2	pF
Reverse Recovery Time	$t_{rr}^*$	$I_F = 10mA, V_R = 6V$ $I_{rr} = 0.1 \cdot I_R, R_L = 100\Omega$			3	ns

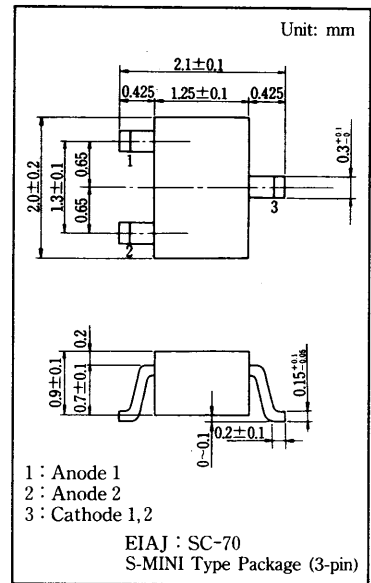
◎ Input and output frequency of ratings: 100MHz  
\* $t_{rr}$  measuring circuit

Bias Insertion Unit N-50BU

#### ■ Marking Symbol



#### ■ Package Dimensions



#### ■ Inner Circuit

