

MA151A, MA152A

Silicon Epitaxial Planar Type

Switching

■ Features

- Fast t_{rr}
- Small C_t

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

Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA151A	40	V
	MA152A	80	
Peak Reverse Voltage	MA151A	40	V
	MA152A	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	$^\circ\text{C}$

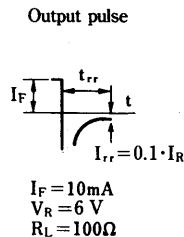
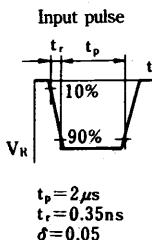
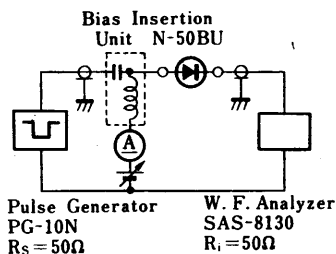
* $t=1\text{s}$

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

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA151A	$V_R=35\text{V}$			0.1	μA
	MA152A	$V_R=75\text{V}$			0.1	
Forward Voltage (DC)	V_F	$I_F=100\text{mA}$			1.2	V
Reverse Voltage (DC)	MA151A	$I_R=100\mu\text{A}$	40			V
	MA152A		80			
Terminal Capacitance	C_t	$V_R=0, f=1\text{MHz}$			2	pF
Reverse Recovery Time	t_{rr}^*	$I_F=10\text{mA}, V_R=6\text{V}, R_L=100\Omega$ $I_{rr}=0.1 \cdot I_R$			3	ns

© Input and output frequency of ratings: 100MHz

* t_{rr} measuring circuit



■ Marking Symbol

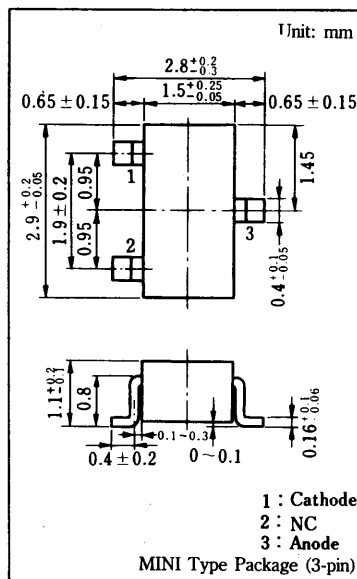
Type No.	MA151A	MA152A
Symbol	MA	MB

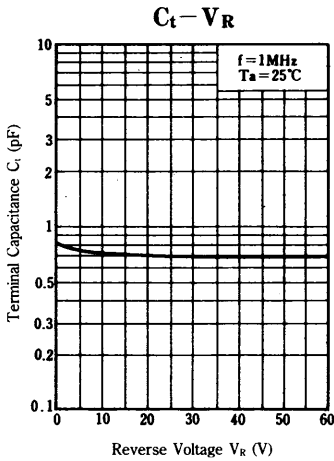
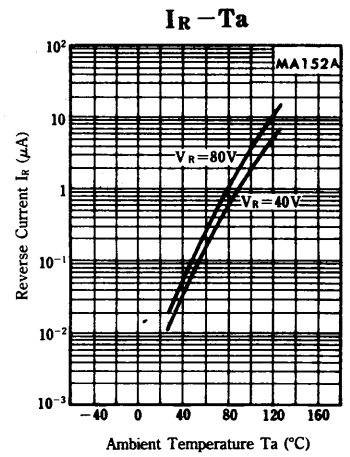
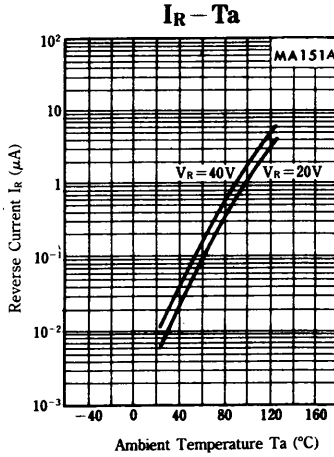
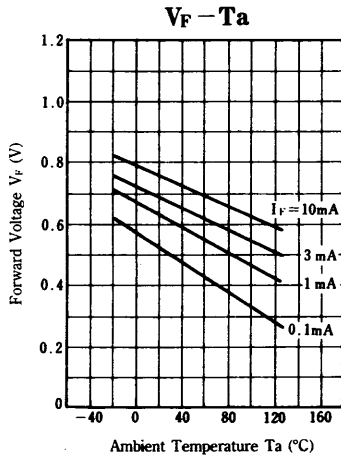
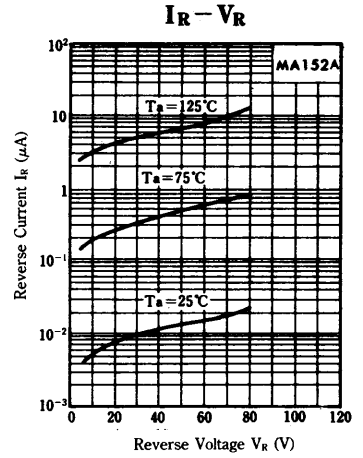
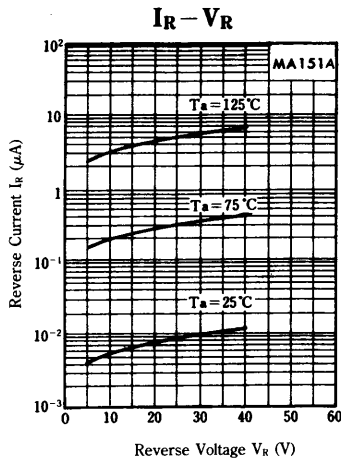
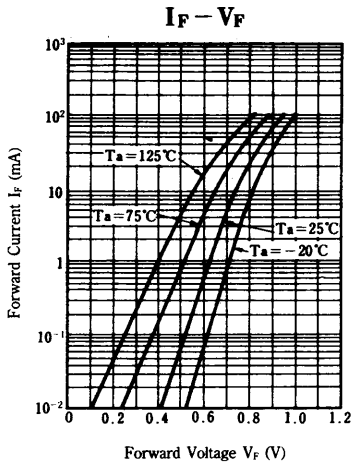
■ Marking Symbol (Ex.)



(MA151A)

■ Package Dimensions





MA151K, MA152K

Silicon Epitaxial Planar Type

Switching

■ Features

- Fast t_{rr}
- Small C_t

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

Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA151K	40	V
	MA152K	80	
Peak Reverse Voltage	MA151K	40	V
	MA152K	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	$^\circ\text{C}$

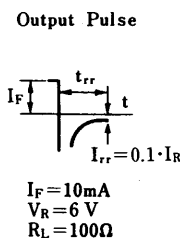
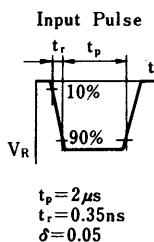
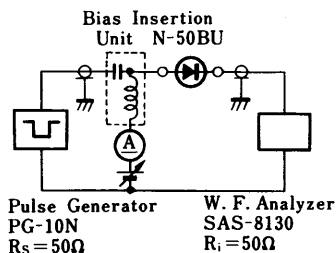
* $t=1\text{s}$

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

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA151K	$V_R=35\text{ V}$			0.1	μA
	MA152K	$V_R=75\text{ V}$			0.1	
Forward Voltage (DC)	V_F	$I_F=100\text{ mA}$	0.95		1.2	V
Reverse Voltage (DC)	MA151K	$I_R=100\ \mu\text{A}$	40			V
	MA152K		80			
Terminal Capacitance	C_t	$V_R=0, f=1\text{ MHz}$		0.9	2	pF
Reverse Recovery Time	t_{rr}^*	$I_F=10\text{ mA}, V_R=6\text{ V}, R_L=100\ \Omega$ $I_{rr}=0.1 \cdot I_R$			3	ns

© Input and output frequency of ratings: 100MHz

* t_{rr} measuring circuit



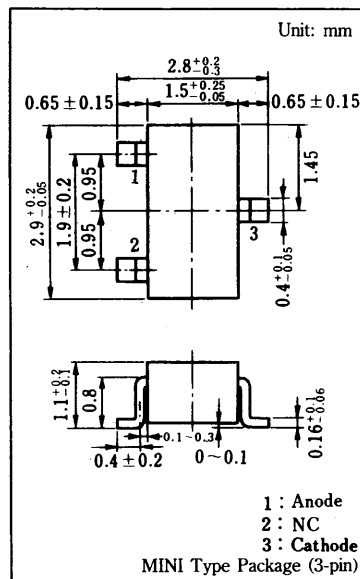
■ Marking Symbol

Type No.	MA151K	MA152K
Symbol	MH	MI

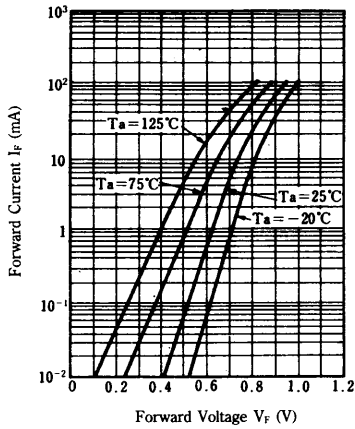
■ Marking Symbol (Ex.)



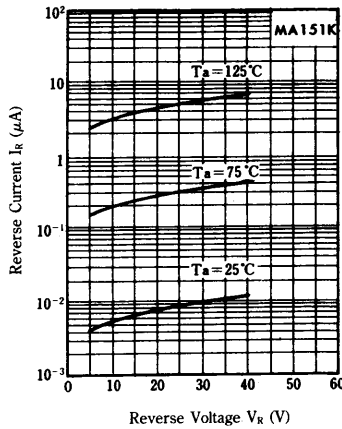
■ Package Dimensions



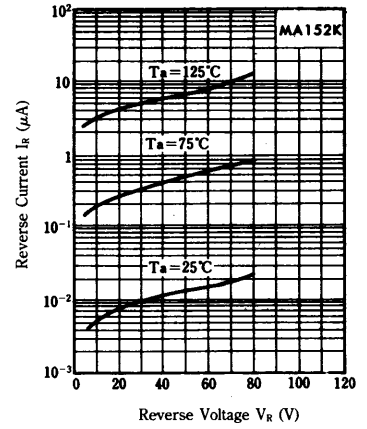
$I_F - V_F$



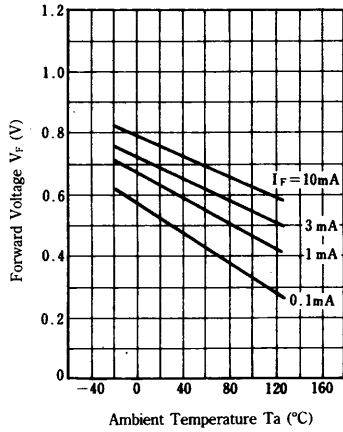
$I_R - V_R$



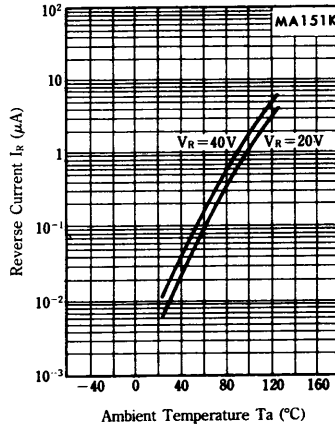
$I_R - V_R$



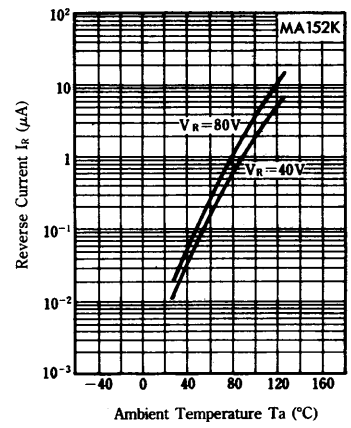
$V_F - T_a$



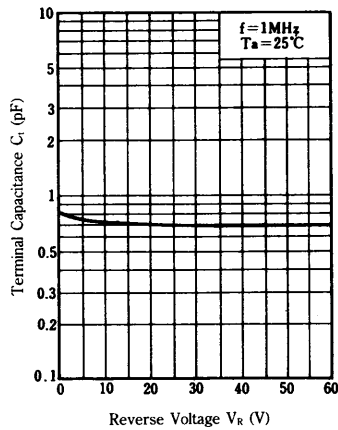
$I_R - T_a$



$I_R - T_a$



$C_t - V_R$



MA151WA, MA152WA

Silicon Epitaxial Planar Type

Switching

■ Features

- Fast t_{rr}
- Small C_t

■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA151WA	40	V
	MA152WA	80	
Peak Reverse Voltage	MA151WA	40	V
	MA152WA	80	
Forward Current (DC)	Single	100	mA
	Double	150	
Peak Forward Current	Single	225	mA
	Double	340	
Non-Repetitive Peak Forward Surge Current	Single	500	mA
	Double	750	
Junction Temperature	T_j	150	°C
Storage Temperature	T_{sig}	-55 ~ +150	°C

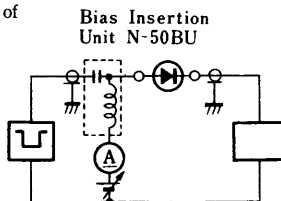
* $t=1s$

■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA151WA	$V_R = 35V$			0.1	μA
	MA152WA	$V_R = 75V$			0.1	
Forward Voltage (DC)	V_F	$I_F = 100mA$			1.2	V
Reverse Voltage (DC)	MA151WA	$I_R = 100\mu A$	40			V
	MA152WA		80			
Terminal Capacitance	C_t	$V_R = 0, f = 1MHz$			15	pF
Reverse Recovery Time	t_{rr}^*	$I_F = 10mA, V_R = 6V, R_L = 100\Omega$ $I_{rr} = 0.1 \cdot I_R$			10	ns

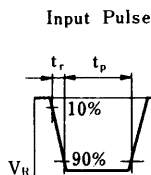
© Input and output frequency of ratings: 100MHz

* t_{rr} measuring circuit



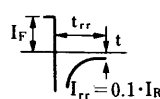
Pulse Generator
PG-10N
 $R_S = 50\Omega$

W. F. Analyzer
SAS-8130
 $R_i = 50\Omega$



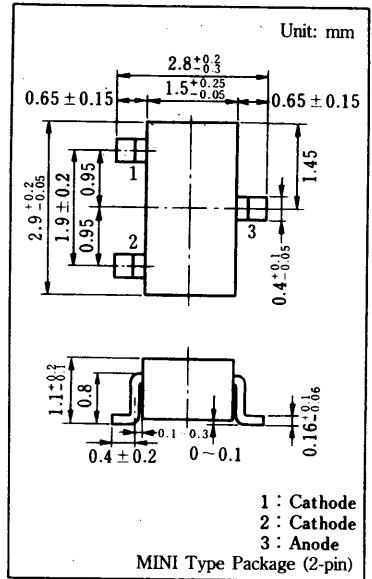
$t_p = 2\mu s$
 $t_r = 0.35ns$
 $\delta = 0.05$

Output Pulse

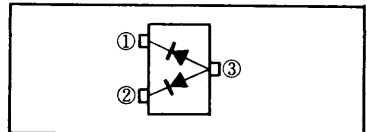


$I_F = 10mA$
 $V_R = 6V$
 $R_L = 100\Omega$

■ Package Dimensions



■ Inner Circuit



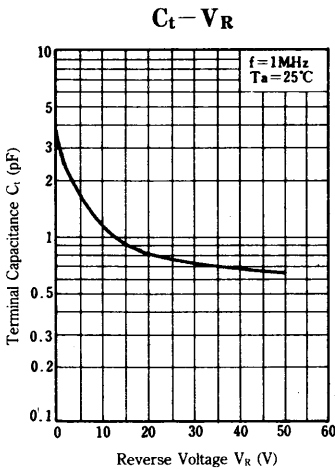
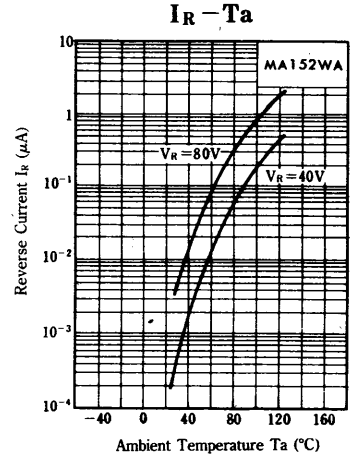
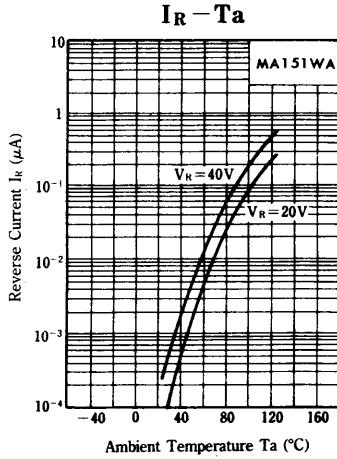
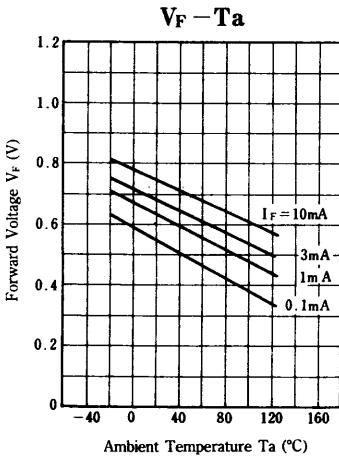
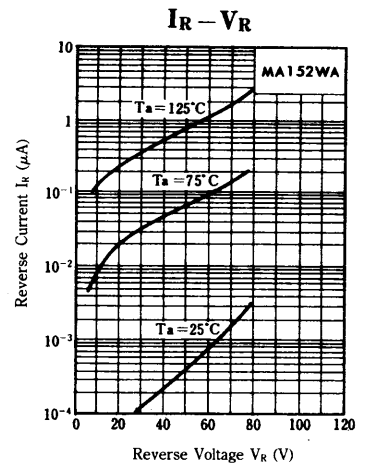
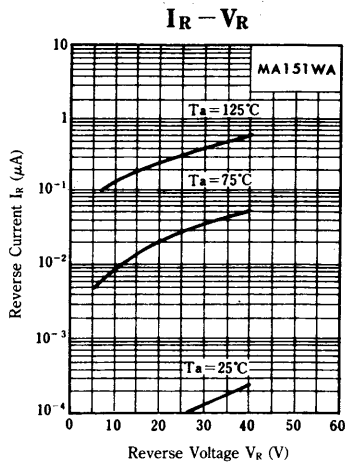
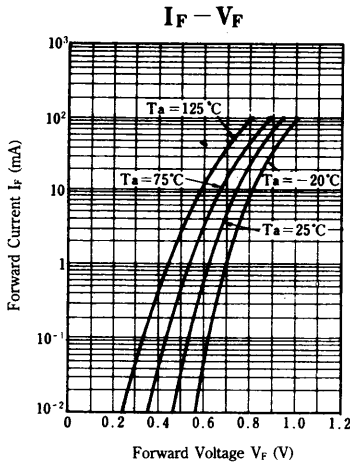
■ Marking Symbol

Type No.	MA151WA	MA152WA
Symbol	MN	MO

■ Marking Symbol (Ex.)



(MA151WA)



MA151WK, MA152WK

Silicon Epitaxial Planar Type

Switching

■ Features

- Fast t_{rr}
- Small C_t

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

Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA151WK	40	V
	MA152WK	80	
Peak Reverse Voltage	MA151WK	40	V
	MA152WK	80	
Forward Current (DC)	Single	100	mA
	Double	150	
Peak Forward Current	Single	225	mA
	Double	340	
Non-Repetitive Peak Forward Surge Current	Single	500	mA
	Double	750	
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

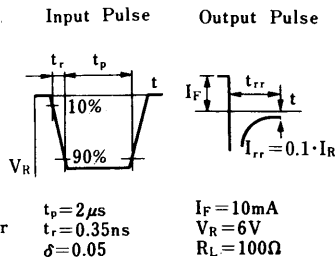
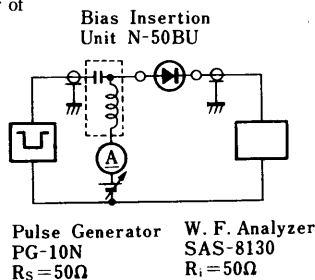
* $t=1\text{s}$

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

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA151WK	$V_R=35\text{V}$			0.1	μA
	MA152WK	$V_R=75\text{V}$			0.1	
Forward Voltage (DC)	V_F	$I_F=100\text{mA}$			1.2	V
Reverse Voltage (DC)	MA151WK	$I_R=100\mu\text{A}$	40			V
	MA152WK		80			
Terminal Capacitance	C_t	$V_R=0, f=1\text{MHz}$			2	pF
Reverse Recovery Time	t_{rr}^*	$I_F=10\text{mA}, V_R=6\text{V}, R_L=100\Omega$ $I_{rr}=0.1 \cdot I_R$			3	ns

© Input and output frequency of ratings: 100MHz

* t_{rr} measuring circuit



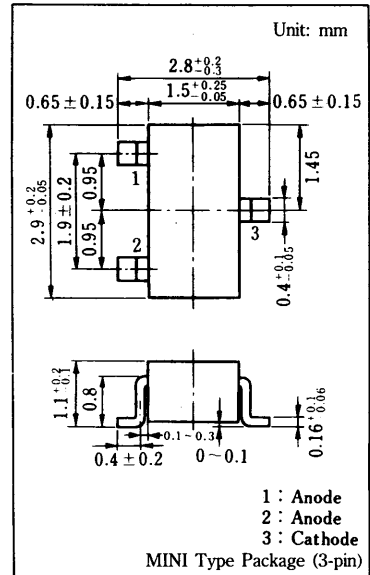
■ Marking Symbol

Type No.	MA151WK	MA152WK
Symbol	MT	MU

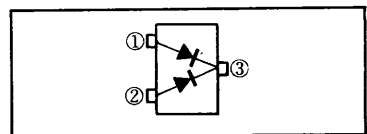
■ Marking Symbol (Ex.)

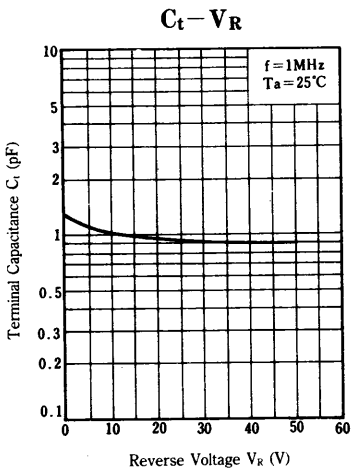
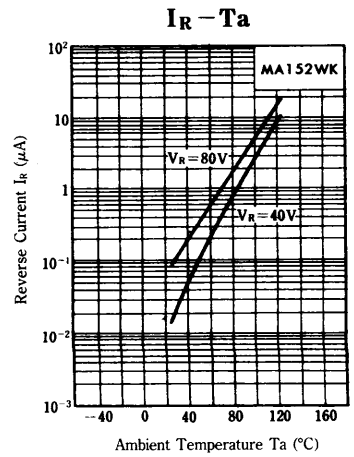
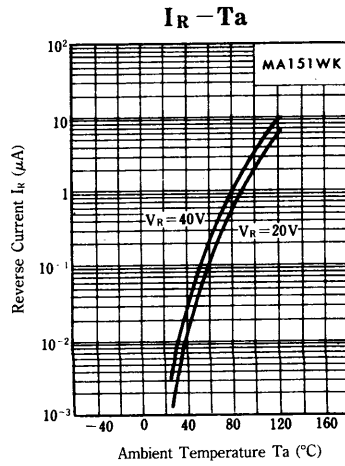
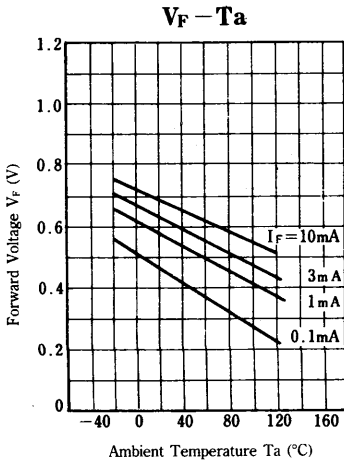
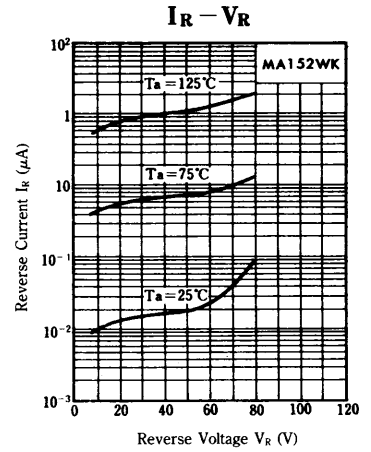
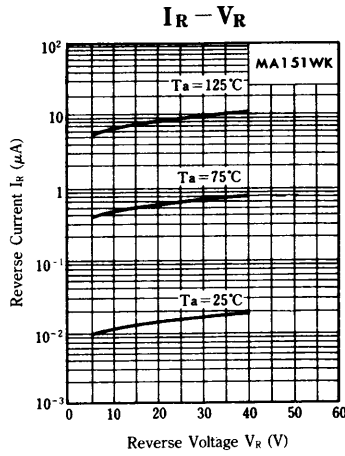
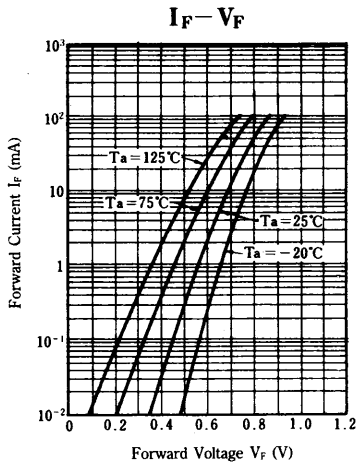


■ Package Dimensions



■ Inner Circuit





MA153, MA153A

Silicon Epitaxial Planar Type

Switching

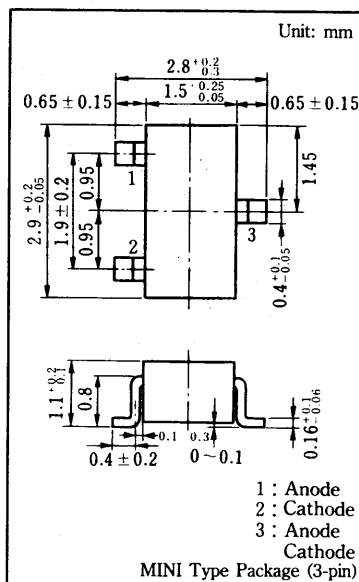
■ Features

- Small C_t
- Series connection in package

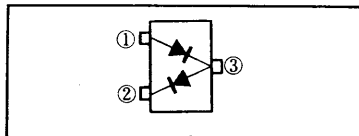
■ Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA153	40	V
	MA153A	80	
Peak Reverse Voltage	MA153	40	V
	MA153A	80	
Forward Current (DC)	Single	100	mA
	Series	65	
Peak Forward Current	Single	200	mA
	Series	130	
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

■ Package Dimensions



■ Inner Circuit



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

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA153	$V_R=40\text{V}$			0.1	μA
	MA153A	$V_R=75\text{V}$			0.1	
Forward Voltage (DC)	V_F	$I_F=100\text{mA}$			1.2	V
Reverse Voltage (DC)	MA153	$I_R=100\mu\text{A}$	40			V
	MA153A		80			V
Terminal Capacitance	C_t	$V_R=0, f=1\text{MHz}$			5	pF
Reverse Recovery Time	$t_{rr}(2-3\text{間})$	$I_F=10\text{mA}, V_R=6\text{V}$ $I_{rr}=0.1 \cdot I_R, R_L=100\Omega$		150		ns
	$t_{rr}(1-3\text{間})$	$I_F=10\text{mA}, V_R=6\text{V}$ $I_{rr}=0.1 \cdot I_R, R_L=100\Omega$		9		ns

© Input and output frequency of ratings: 100MHz

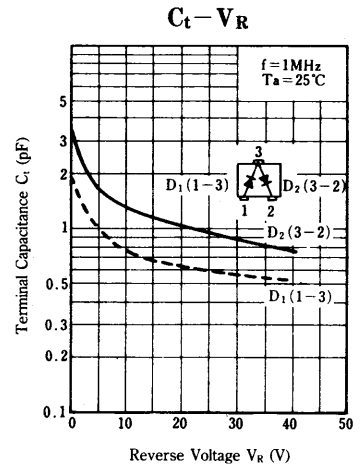
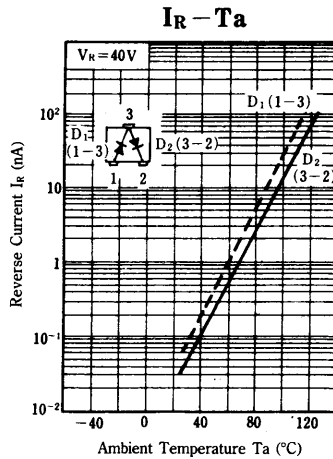
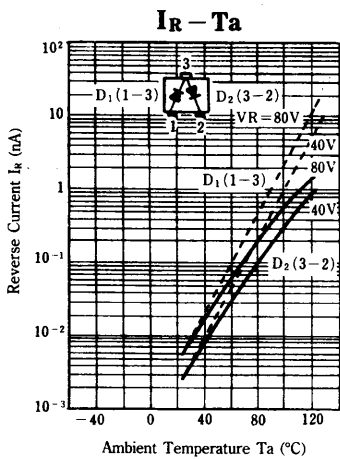
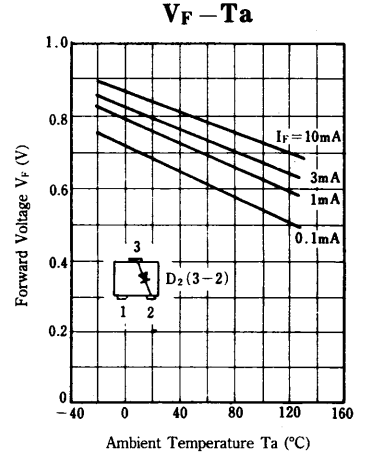
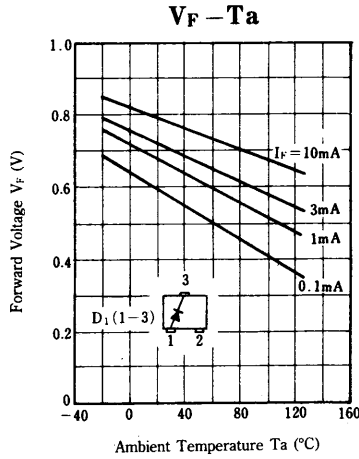
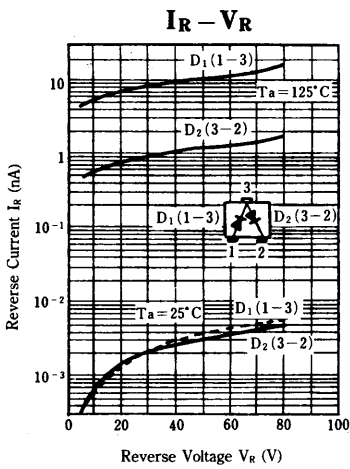
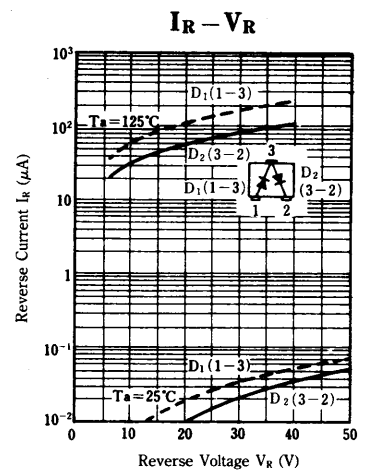
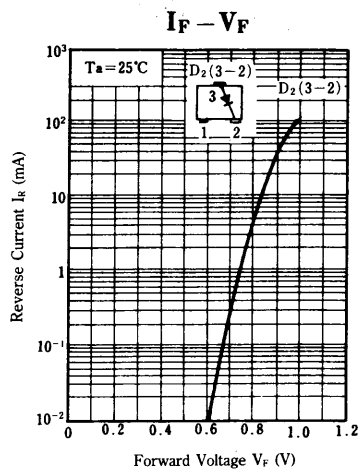
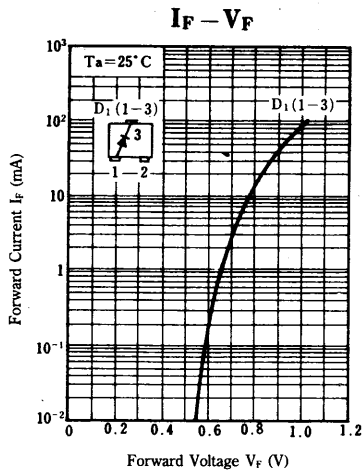
■ Marking Symbol

Type No.	MA153	MA153A
Symbol	MC	MP

■ Marking Symbol (Ex.)



(MA153)



MA154WA, MA155WA

Silicon Epitaxial Planar Type

Switching

■ Features

- Fast t_{rr}
- Small C_t

■ Absolute Maximum Ratings (Ta=25°C)

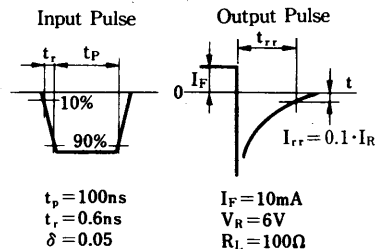
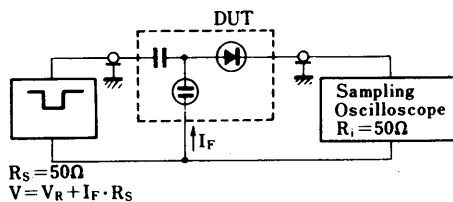
Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA154WA	40	V
	MA155WA	80	
Peak Reverse Voltage	MA154WA	40	V
	MA155WA	80	
Forward Current (DC)	Single	100	mA
	Double	150	
Peak Forward Current	Single	225	mA
	Double	340	
Non-Repetitive Peak Forward Surge Current	Single	500	mA
	Double	750	
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55 ~ +150	°C

* $t=1s$

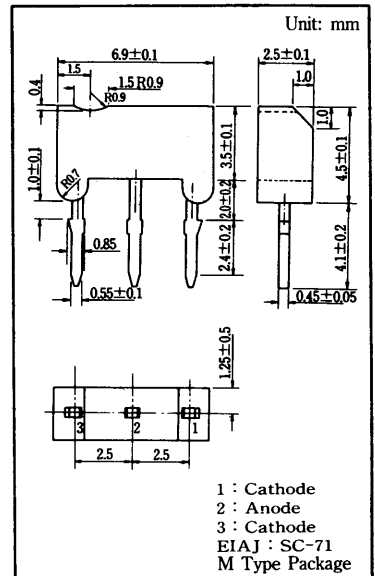
■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA154WA	$V_R = 35V$			0.1	μA
	MA155WA	$V_R = 75V$			0.1	
Forward Voltage (DC)	V_F	$I_F = 100mA$			1.2	V
Reverse Voltage (DC)	MA154WA	$I_R = 100\mu A$	40			V
	MA155WA		80			
Terminal Capacitance	C_t	$V_R = 0, f = 1MHz$			4	pF
Reverse Recovery Time	t_{rr}^*	$I_F = 10mA, V_R = 6V, R_L = 100\Omega$ $I_{rr} = 0.1 \cdot I_R$			10	ns

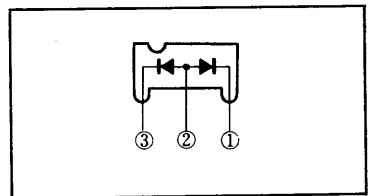
* t_{rr} measuring circuit

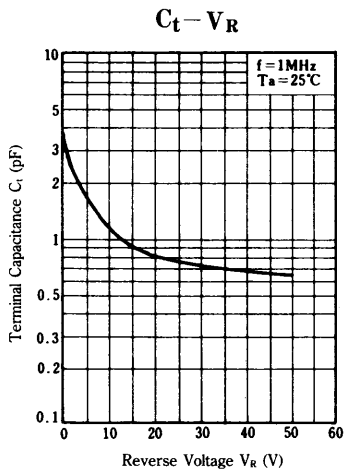
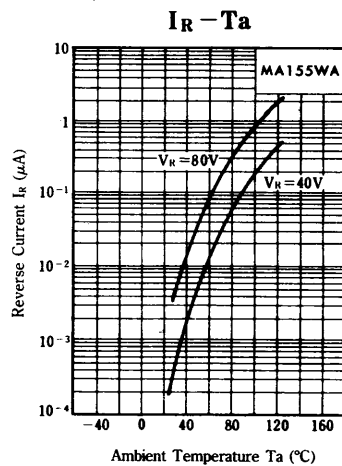
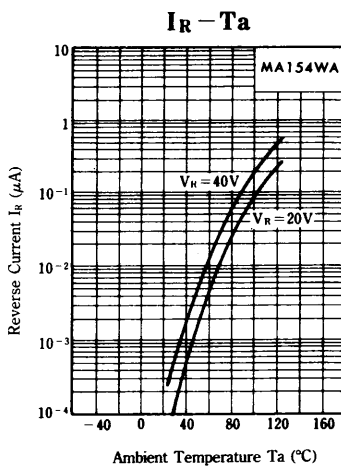
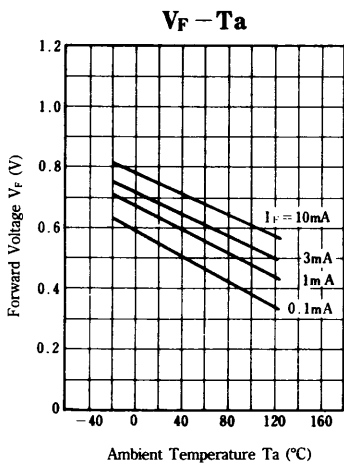
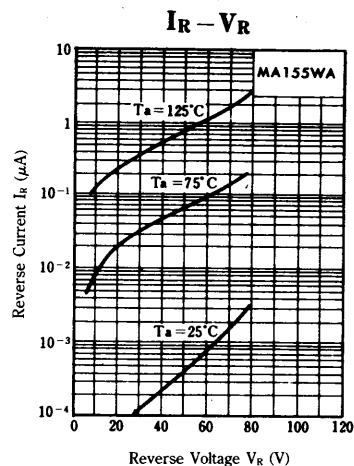
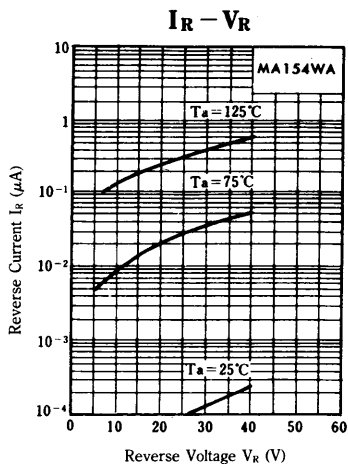
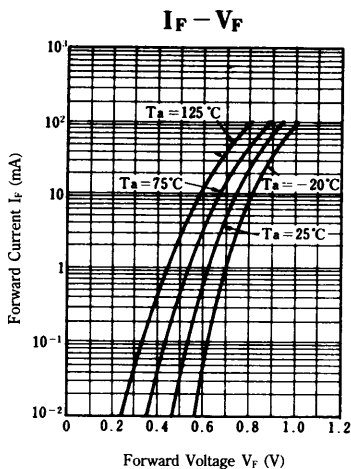


■ Package Dimensions



■ Inner Circuit





→ 156

MA154WK, MA155WK

Silicon Epitaxial Planar Type

Switching

■ Features

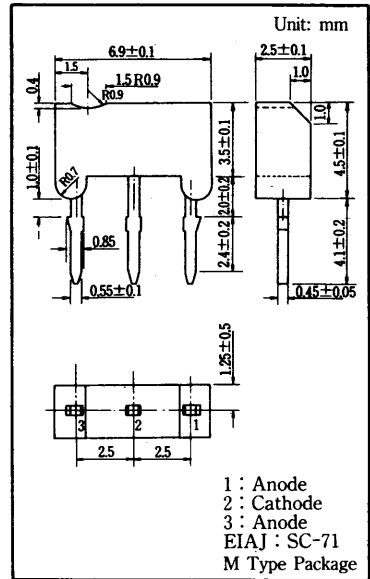
- Fast t_{rr}
- Small C_t

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

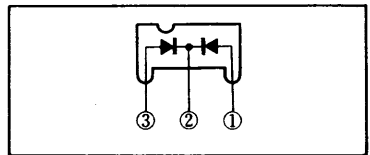
Item	Symbol	Value	Unit
Reverse Voltage (DC)	MA154WK	40	V
	MA155WK	80	
Peak Reverse Voltage	MA154WK	40	V
	MA155WK	80	
Forward Current (DC)	Single	100	mA
	Double	150	
Peak Forward Current	Single	225	mA
	Double	340	
Non-Repetitive Peak Forward Surge Current	Single	500	mA
	Double	750	
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

* $t=1\text{s}$

■ Package Dimensions



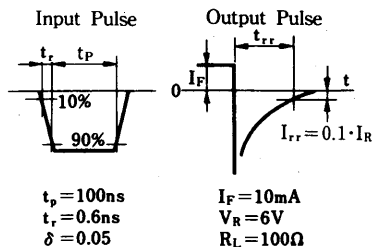
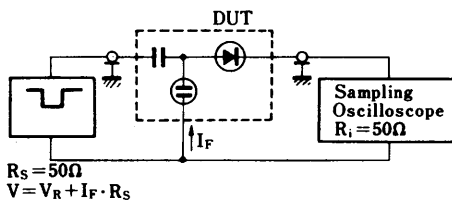
■ Inner Circuit

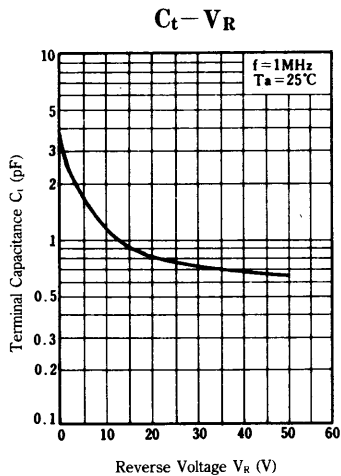
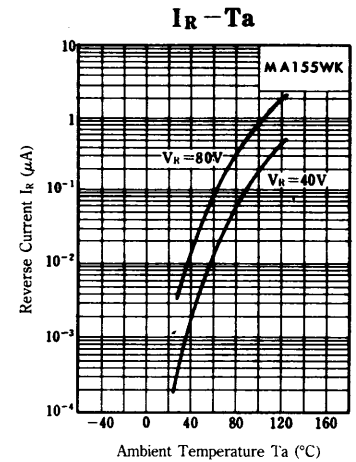
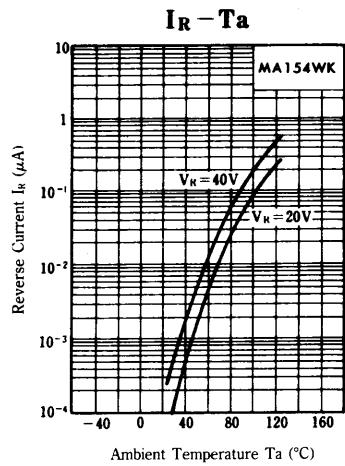
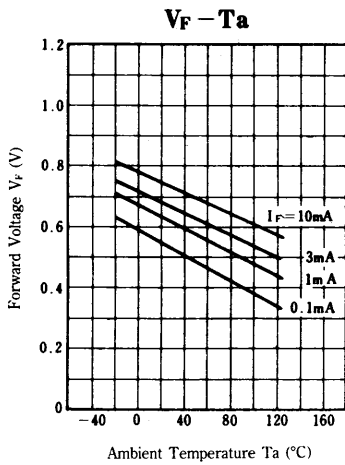
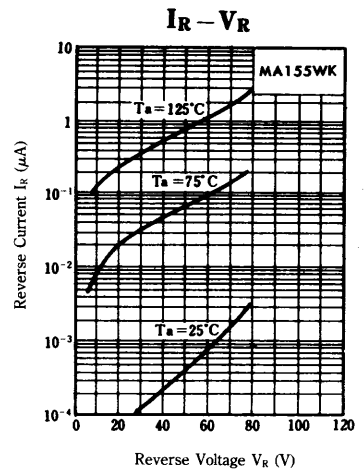
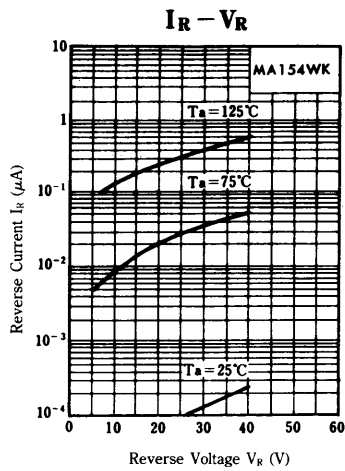
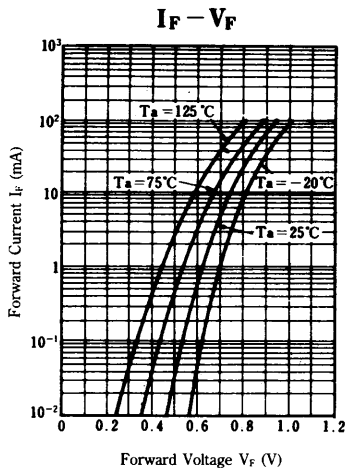


■ Electrical Characteristics ($T_a=25^\circ\text{C}$)

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	MA154WK	$V_R = 35\text{ V}$			0.1	μA
	MA155WK	$V_R = 75\text{ V}$			0.1	
Forward Voltage (DC)	V_F	$I_F = 100\text{ mA}$			1.2	V
Reverse Voltage (DC)	MA154WK	$I_R = 100\ \mu\text{A}$	40			V
	MA155WK		80			
Terminal Capacitance	C_t	$V_R = 0, f = 1\text{ MHz}$			4	pF
Reverse Recovery Time	t_{rr}^*	$I_F = 10\text{ mA}, V_R = 6\text{ V}, R_L = 100\ \Omega$ $I_{rr} = 0.1 \cdot I_R$			3	ns

* t_{rr} measuring circuit





MA156

Silicon Epitaxial Planar Type

Switching

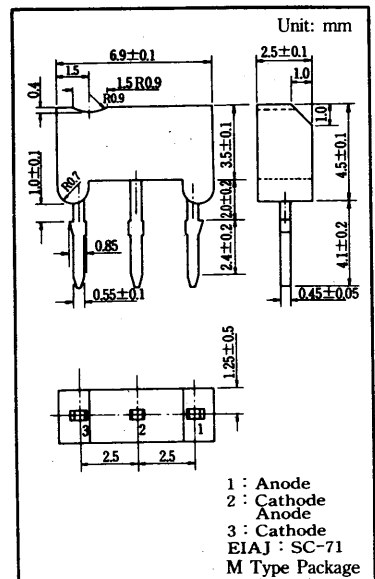
■ Features

- Diodes in package are connected in series.
- M type package suitable for automatic and manual insertion. Can be firmly mounted flush to PCB surface.

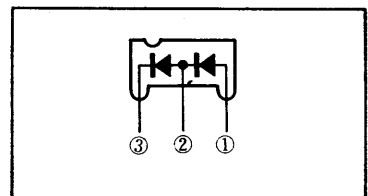
■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
Reverse Voltage	V_R	40	V
Repetitive Peak Reverse Voltage	V_{RRM}	40	V
Peak Forward Current	I_F	100	mA
Peak Reverse Current	I_{FM}	200	mA
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55 ~ +150	°C

■ Package Dimensions



■ Inner Circuit



■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Current (DC)	I_R	$V_R=40V$			0.1	μA
Forward Voltage (DC)	V_F	$I_F=100mA$			1.2	V
Reverse Voltage (DC)	V_R	$I_R=100\mu A$	40			V
Terminal Capacitance	C_t	$V_R=0, f=1MHz$			5.0	pF

© Input and output frequency of ratings: 100MHz