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MA4X194 (MA194)

Silicon epitaxial planar type

For switching circuits

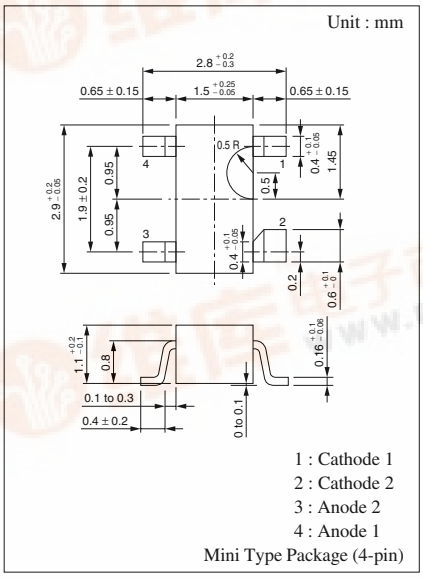
■ Features

- Short reverse recovery time t_{rr}
- Two isolated elements contained in one package, allowing high-density mounting

■ Absolute Maximum Ratings $T_a = 25°C$

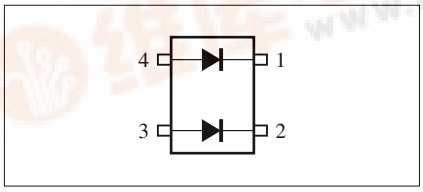
Parameter		Symbol	Rating	Unit
Reverse voltage (DC)		V_R	40	V
Repetitive peak reverse voltage		V_{RRM}	40	V
Average forward current	Single	$I_{F(AV)}$	100	mA
	Double	$I_{F(AV)}$	75	mA/Unit
Repetitive peak forward current	Single	I_{FRM}	225	mA
	Double	I_{FRM}	170	mA/Unit
Non-repetitive peak forward surge current*	Single	I_{FSM}	500	mA
	Double	I_{FSM}	375	mA/Unit
Power dissipation		P_D	150	mW
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	–55 to +150	°C

Note) * : t = 1 s



Marking Symbol: M1F

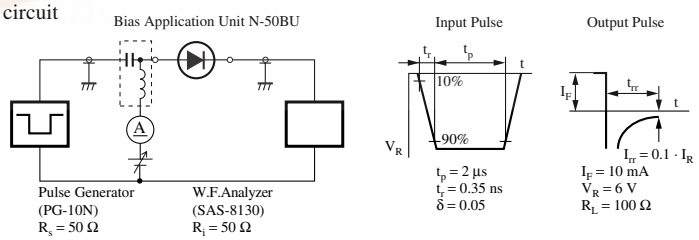
Internal Connection



■ Electrical Characteristics $T_a = 25°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse current (DC)	I_{R1}	$V_R = 40$ V			10	nA
	I_{R2}	$V_R = 35$ V, $T_a = 150°C$			10	μA
Forward voltage (DC)	V_F	$I_F = 100$ mA		0.98	1.2	V
Terminal capacitance	C_t	$V_R = 6$ V, f = 1 MHz		1.0	2.0	pF
Forward dynamic resistance	r_f *1	$I_F = 3$ mA, f = 30 MHz		1.7	2.5	Ω
	r_f *2	$I_F = 3$ mA, f = 30 MHz			3.6	
Reverse recovery time*3	t_{rr}	$I_F = 10$ mA, $V_R = 6$ V $I_{rr} = 0.1 \cdot I_R$, $R_L = 100$ Ω			100	ns

Note) *1 : r_f measuring instrument: Nihon Koshuha Model TDC-121A
*2 : r_f measuring instrument: YHP 4191A RF IMPEDANCE ANALYZER
*3 : t_{rr} measuring circuit



Note) The part number in the parenthesis shows conventional part number.

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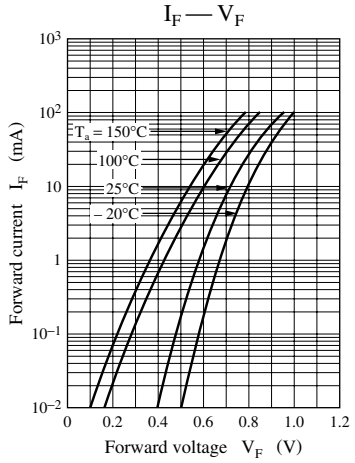
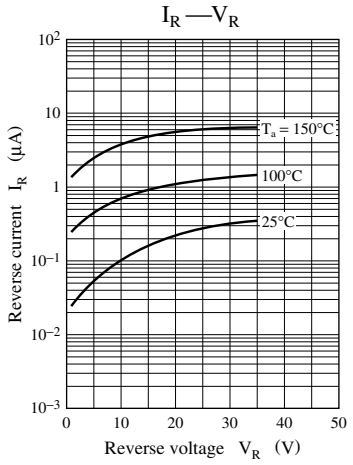
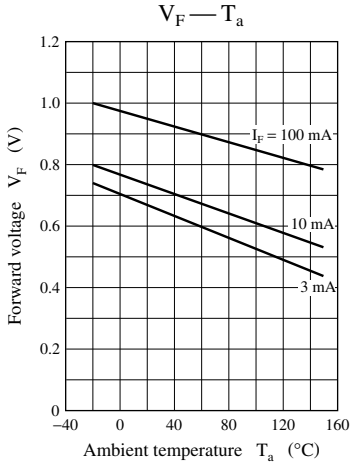
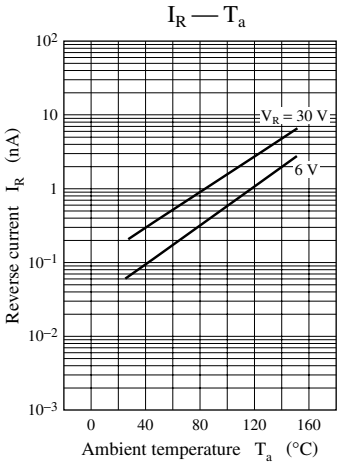
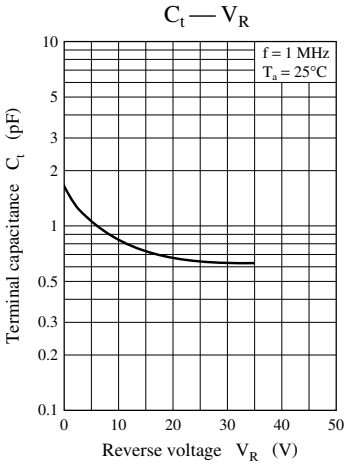

I_F — V_F
10^3
10^2
10
1
10^{-1}
10^{-2}
T_a = 150°C
100°C
25°C
– 20°C
Forward current I_F (mA)
0
0.2
0.4
0.6
0.8
1.0
1.2
Forward voltage V_F (V)


I_R —V_R
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
T_a = 150°C
100°C
25°C
Reverse current I_R (μA)
0
10
20
30
40
50
Reverse voltage V_R (V)


V_F — T_a
1.2
1.0
0.8
0.6
0.4
0.2
0
I_F = 100 mA
10 mA
3 mA
Forward voltage V_F (V)
–40
0
40
80
120
160
Ambient temperature T_a (°C)


I_R — T_a
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
V_R = 30 V
6 V
Reverse current I_R (nA)
0
40
80
120
160
Ambient temperature T_a (°C)


C_t — V_R
f = 1 MHz
T_a = 25°C
10
5
3
2
1
0.5
0.3
0.2
0.1
Terminal capacitance C_t (pF)
0
10
20
30
40
50
Reverse voltage V_R (V)

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