HKT Hottech Electronic

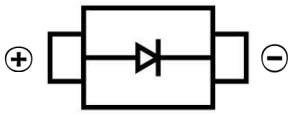
10MQ100N

SCHOTTKY BARRIER DIODE

FEATURES

- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Low forward voltage drop
- Designed and qualified for industrial level
- Surface Mount device

SMA



MECHANICAL DATA

- Case: SMA(DO-214AC)
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.065 grams (approximate)

MAXIMUM RATINGS AND CHARACTERISTICS(T_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	100	V
DC Blocking Reverse Voltage	V_R	100	V
Maximum Average Forward Rectified Current	$I_{F(AV)}$	2.1	A
Maximum average forward current(T_J=125°C)	$I_{F(AV)}$	1.5	A
Non-Repetitive Peak Forward Surge Current @t@=8.3ms	I_{FSM}	120	A
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	80	°C/W
Non-repetitive avalanche energy(T_J=25°C,I_{AS}=0.5A, L=8mH)	E_{AS}	1.0	mJ
Repetitive avalanche current	I_{AR}	0.5	A
Junction Temperature(Note2)	T_J	-55 ~+150	°C
Storage Temperature	T_{STG}	-55 ~+150	°C

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

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Forward voltage(Note1)	V_F			0.78	V	I_F=1A, T_J = 25 °C
				0.85	V	I_F=1.5A, T_J = 25 °C
				0.63	V	I_F=1A, T_J = 125 °C
				0.68	V	I_F=1.5A, T_J = 125 °C
Reverse current(T_J= 25°C)(Note1)	I_R			0.1	mA	V_R=100V
Reverse current(T_J=125°C)(Note1)	I_R			1	mA	V_R=100V
Threshold voltage	$V_{F(TO}$			0.52	V	T_J = T_J maximum
Forward slope resistance	R_t			78.4	mΩ	T_J = T_J maximum
Typical junction capacitance	C_T		38		pF	V_R=10V_{DC},f=1MHz
Typical series inductance	L_S		2.0		nH	Measured lead to lead 5 mm from package body
Maximum voltage rate of change	dV/dt			10000	V/μs	Rated V_R

Note (1) Pulse width < 300 μs, duty cycle < 2 %

(2) $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{thJA}}$ thermal runaway condition for a diode on its own heatsink

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Typical Characteristics

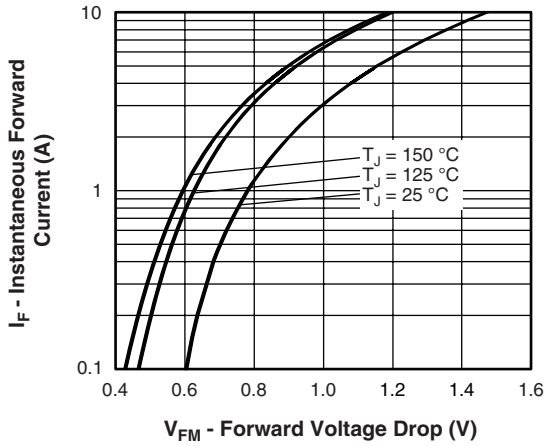

Fig. 1 - Maximum Forward Voltage Drop Characteristics

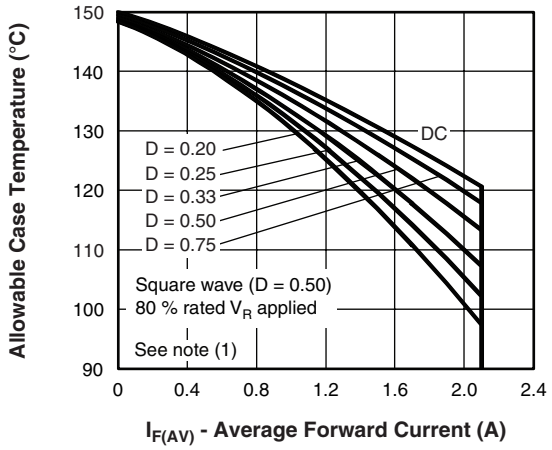

Fig. 4 - Maximum Average Forward Current vs. Allowable Lead Temperature

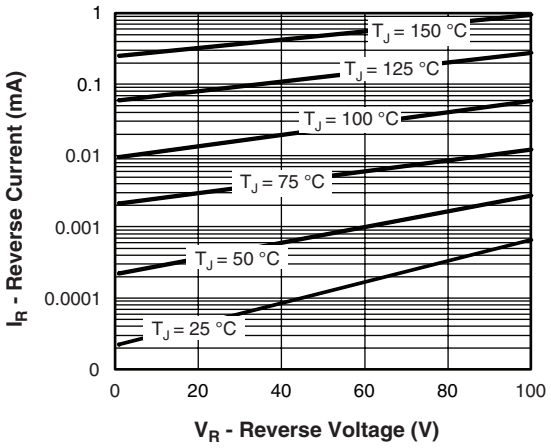

Fig. 2 - Typical Peak Reverse Current vs. Reverse Voltage

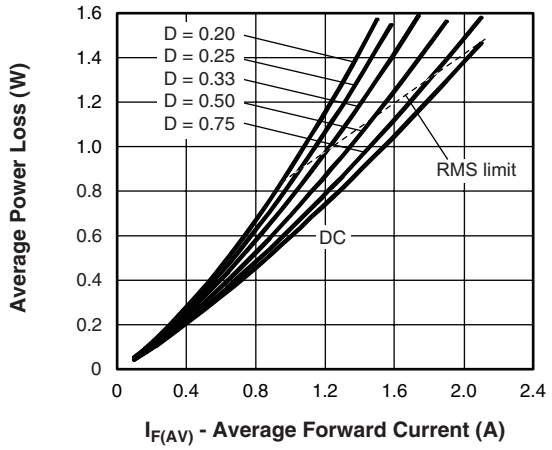

Fig. 5 - Maximum Average Forward Dissipation vs. Average Forward Current

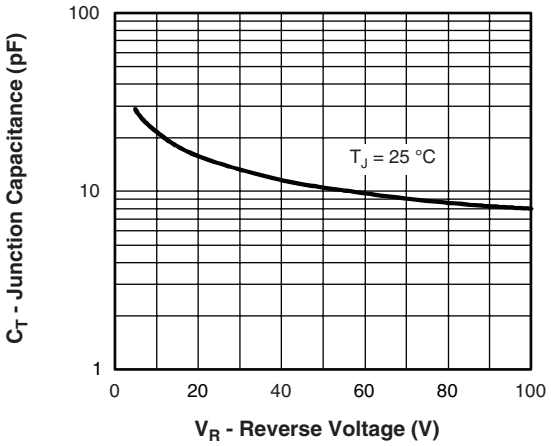

Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

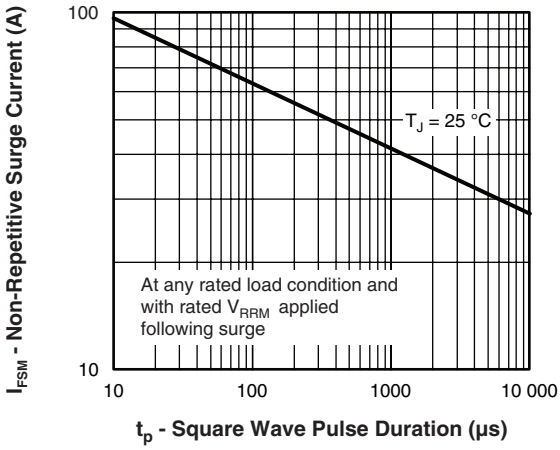

Fig. 6 - Maximum Peak Surge Forward Current vs. Pulse Duration

Note

(1) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$;
Pd = Forward power loss = $I_{F(AV)} \times V_{FM}$ at ($I_{F(AV)}$/D) (see fig. 6); Pd_{REV} = Inverse power loss = $V_{R1} \times I_R$ (1 - D); I_R at V_{R1} = 80 % rated V_R

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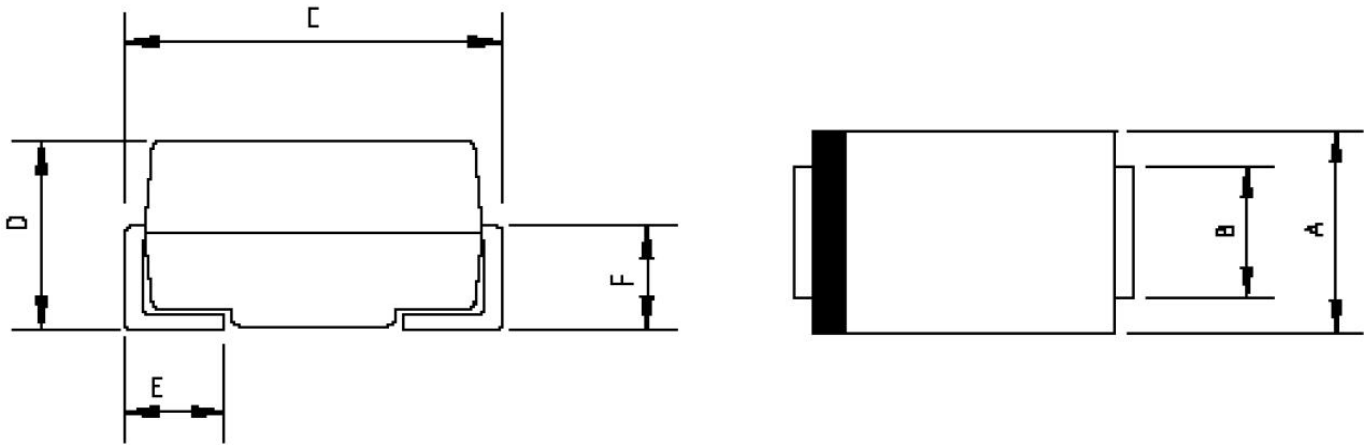
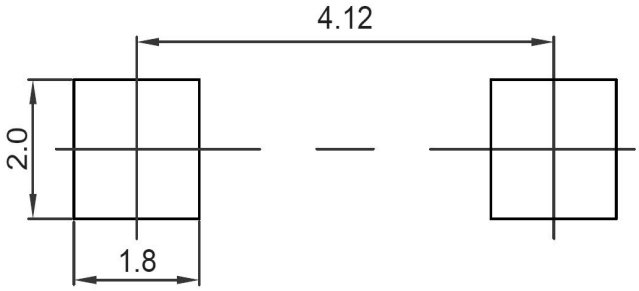
SMA Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.80	0.086	0.110
B	1.30	1.70	0.051	0.067
C	4.70	5.30	0.185	0.209
D	1.70	2.55	0.067	0.100
E	0.90	1.50	0.035	0.059
F	0.90	1.50	0.035	0.059

SMA Suggested Pad Layout



Note:

1.Controlling dimension: in millimeters

2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

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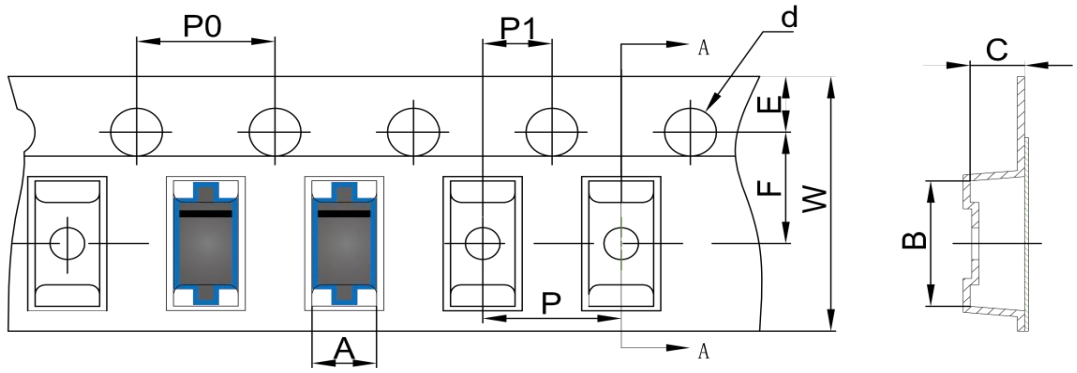
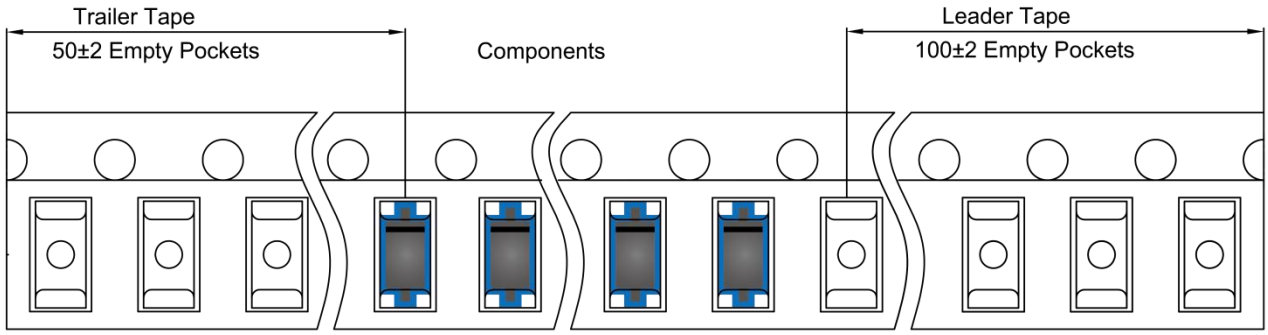
SMA Tape and Reel

SMA Embossed Carrier Tape

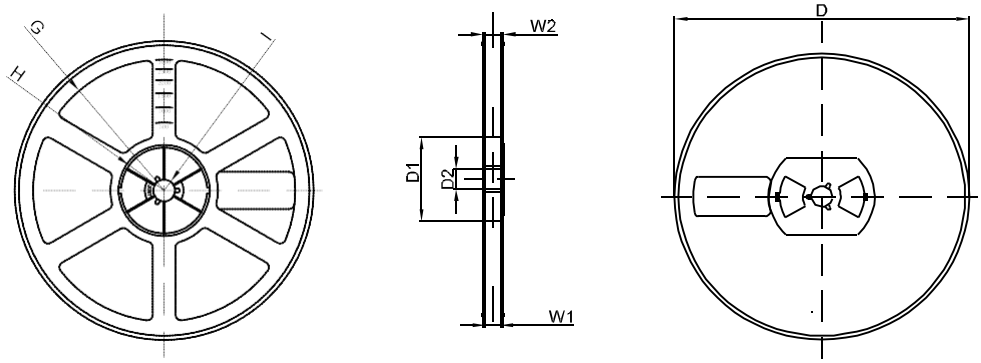


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SMA	2.89	5.35	2.68	Ø1.50	1.75	5.50	4.00	4.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SMA Tape Leader and Trailer



SMA Reel



	DIMENSIONS ARE IN MILLIMETER							
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	12.40	17.60
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1