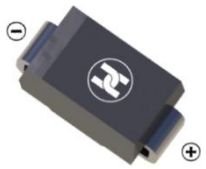
Hottech Semiconductor

10BQ060

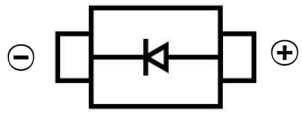
SCHOTTKY BARRIER DIODE



SMB

FEATURES

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



APPLICATIONS

- Disk drives
- Switching power supplies, converters, free-wheeling diodes
- Battery charging and reverse battery protection

MECHANICAL DATA

- Case: SMB(DO-214AA)
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.088 grams (approximate)
- Marking: 10BQ060

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

Parameter		Symbol	Value	Unit
Repetitive peak reverse voltage		V_{RRM}	60	V
DC Reverse Voltage		V_R	60	V
RMS Reverse Voltage		V_{RMS}	42	V
Non-Repetitive Peak Forward Surge Current	t =5μs sine	I_{FSM}	700	A
	t =10ms sine		42	
Mean rectifying current		I_F	1	A
Repetitive Avalanche Current		I_{AR}	1	A
Non- Repetitive Avalanche Energy (I_{AS} = 1A, L = 4mH)		E_{AS}	2.0	mJ
Thermal Resistance From Junction To Ambient		$R_{\theta JA}$	80	°C/W
Thermal Resistance From Junction To Lead		$R_{\theta JL}$	36	°C/W
Junction and Storage Temperature		T_J,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			0.6	V	I_F=1A, T_J=25°C
				0.76		I_F=2A, T_J=25°C
				0.57		I_F=1A, T_J=125°C
				0.69		I_F=2A, T_J=125°C
Reverse current（Note1）	I_R			0.1	mA	V_R=60V,T_J=25°C
				5.0		V_R=60V,T_J=125°C
Junction capacitance	C_J		62		pF	V_R=5V_{DC},f=100kHz~1MHz
Typical Series Inductance	Ls		2.0		nH	
Volatge Rate of Charge	dv/dt			10000	V/μs	

Notes: 1. Pulse with <300 μs, Duty Cycle<2%

Typical Characteristics

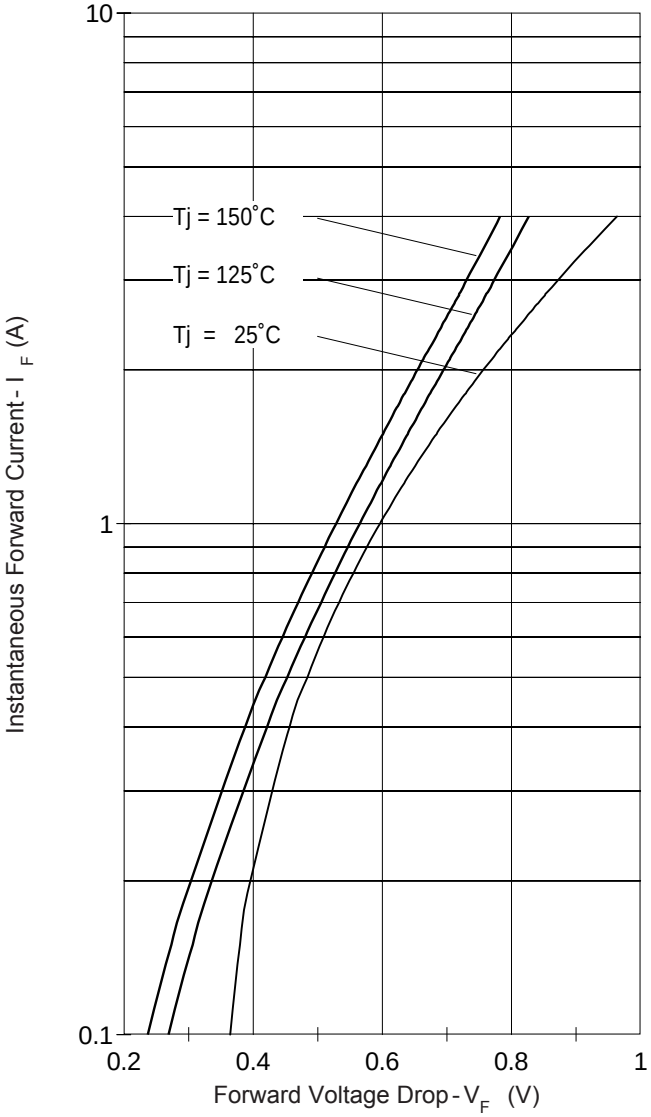


Fig. 1 - Maximum Forward Voltage Drop Characteristics

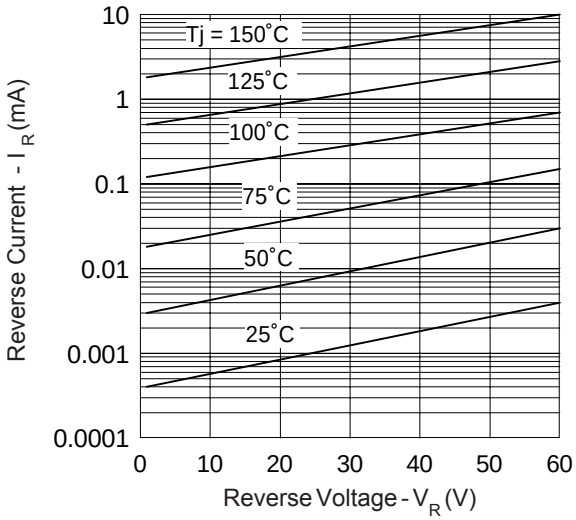


Fig. 2 - Typical Peak Reverse Current Vs. Reverse Voltage

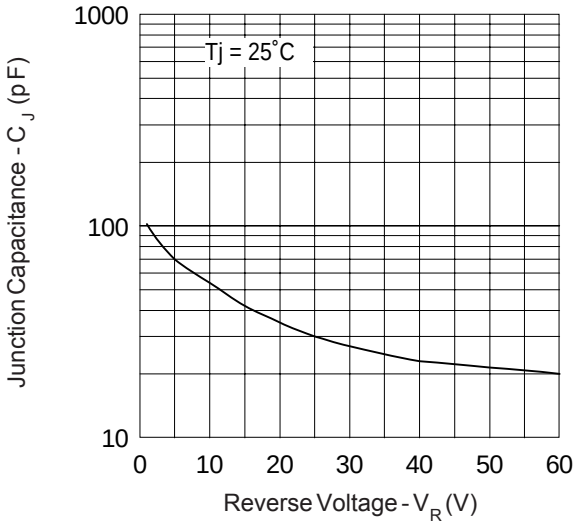


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

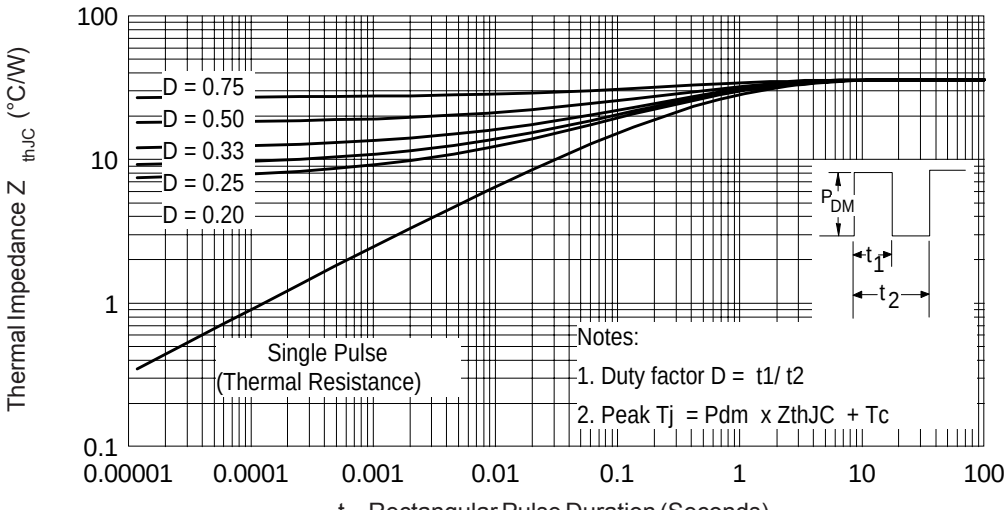


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

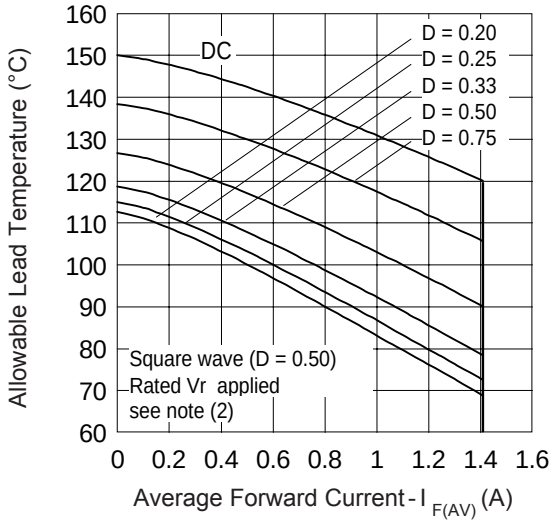


Fig. 4 - Maximum Average Forward Current
Vs. Allowable Lead Temperature

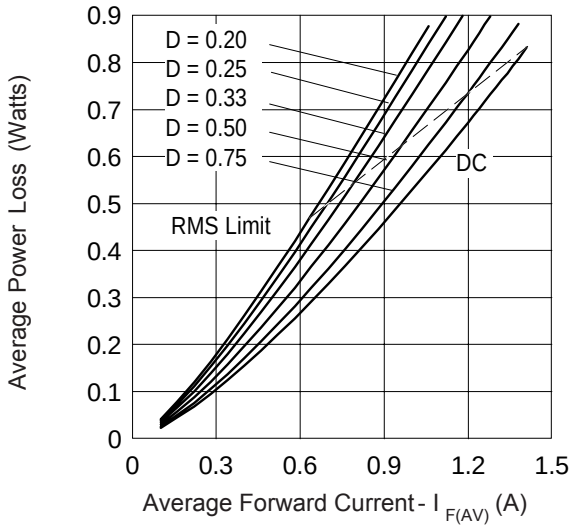


Fig. 5 - Maximum Average Forward Dissipation
Vs. Average Forward Current

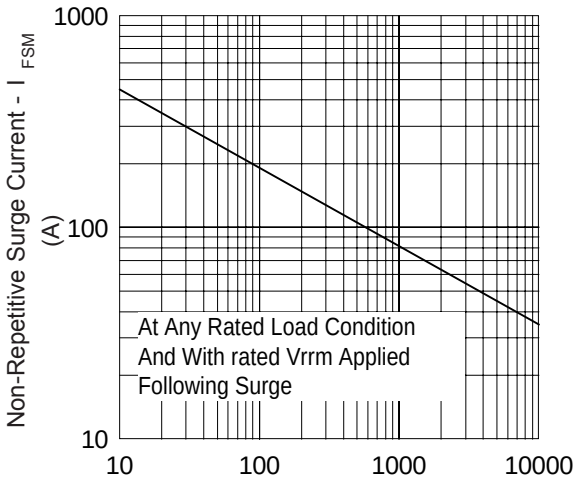
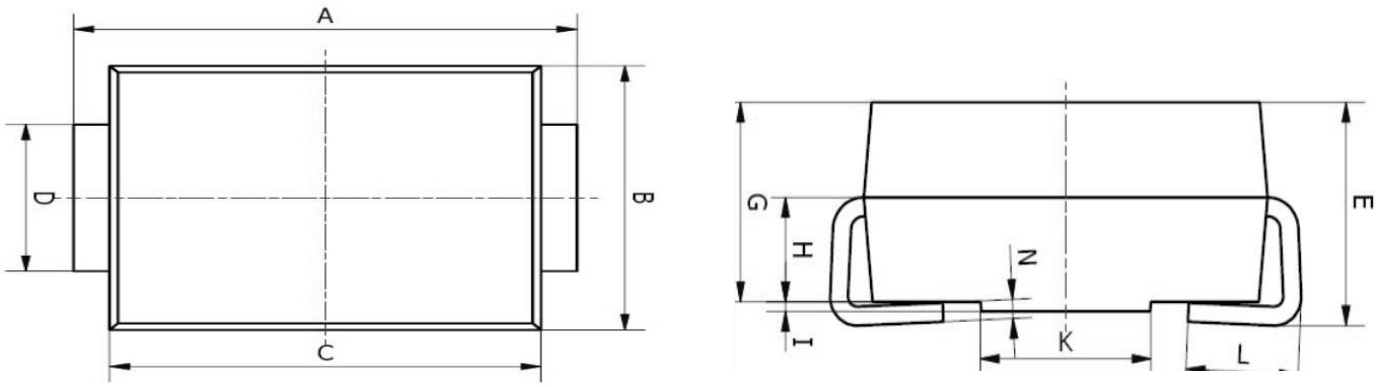


Fig. 6 - Maximum Peak Surge Forward Current Vs. Pulse Duration

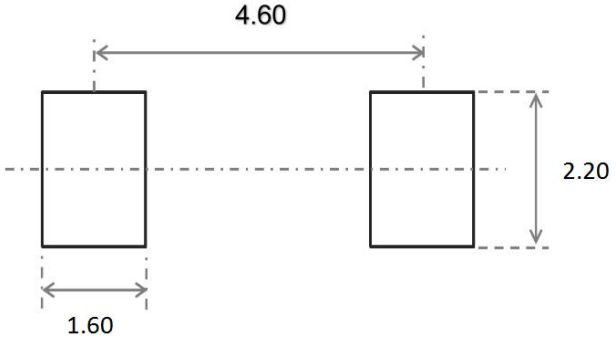
(2) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$;
Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);
Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1}$ = 80% rated V_R

SMB Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	5.00	5.45	0.197	0.215
B	3.20	4.00	0.126	0.157
C	4.30	4.70	0.169	0.185
D	1.80	2.20	0.071	0.087
E	2.20	2.50	0.087	0.098
G	1.90	2.30	0.075	0.090
H	0.95	1.25	0.037	0.049
I	0.05	0.15	0.002	0.006
K	1.70	2.10	0.067	0.083
L	0.90	1.60	0.035	0.063
N	0.10	0.30	0.004	0.012

SMB 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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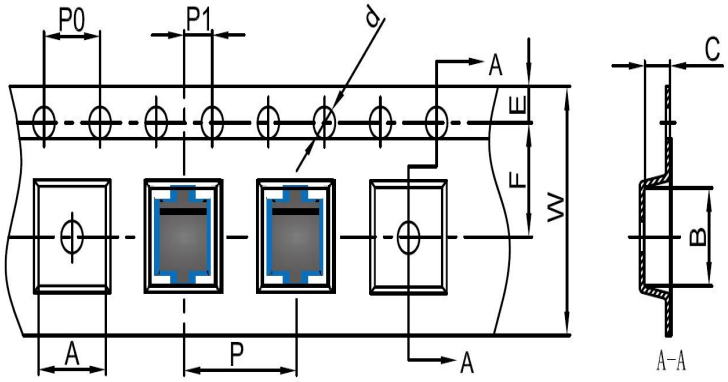
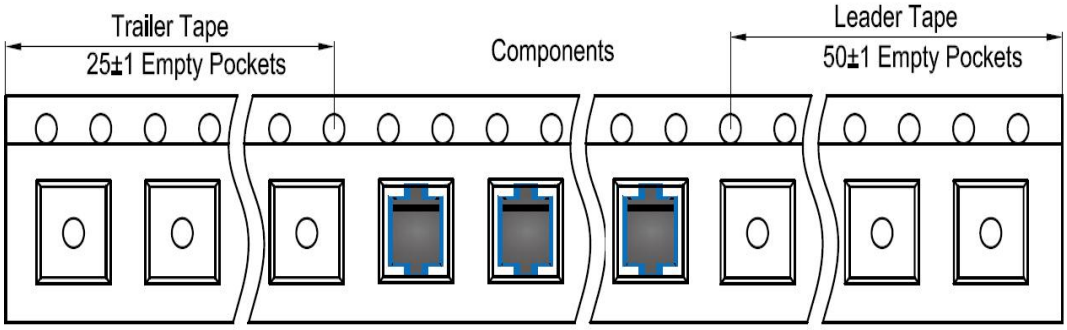
SMB Tape and Reel

SMB Embossed Carrier Tape

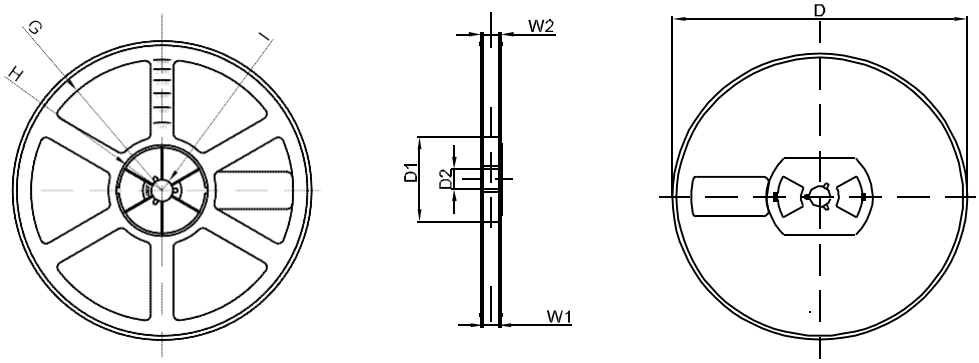


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SMB	4.10	5.50	2.58	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SMB Tape Leader and Trailer



SMB Reel



	DIMENSIONS ARE IN MILLIMETER							
REEL OPTION	D	D1	D2	G	H	I	W1	W2
13” DIA	Ø330	75.0	13.00	R165	R37.50	R6.50	12.40	17.60
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1