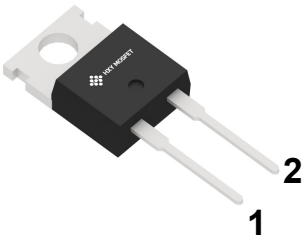
VS-3C20ET07T-M3

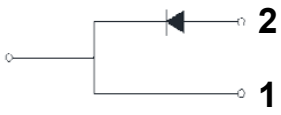
Silicon Carbide Schottky Diode

General Description

This product family offers state of the art performance. It is designed for high frequency applications where high efficiency and high reliability are required.



TO-220C-2L



Features

- Low conduction loss due to low V_F
- Extremely low switching loss by tiny Q_C
- Highly rugged due to better surge current
- Industrial standard quality and reliability

Applications

- UPS
- Power Inverter
- High performance SMPS
- Power factor correction

Ordering Part Number	Package	Qty(PCS)
VS-3C20ET07T-M3	TO-220C-2L	50

Maximum Ratings (at Tj = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
DC Peak Reverse Voltage	V_R	650	V
Continuous Forward Current T_C = 25°C T_C = 135°C T_C = 155°C	I_F	 58 30 20	A
Repetitive Peak Forward Surge Current T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	I_{FRM}	 90 54	A
Non-Repetitive Forward Surge Current T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	I_{FSM}	 160 140	A
i^2dt value T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	$\int i^2dt$	 128 98	A^2s
Power dissipation T_C = 25°C T_C = 110°C	P_{tot}	 136 59	W
Operating junction Range	T_j	-55 to +175	°C
Storage temperature Range	T_{stg}	-55 to +150	°C

Thermal Resistance

Parameter	Symbol	Value	Unit
Thermal resistance, junction – case.	R_{thJC}	1.10	°C/W

Electrical Characteristics (at Tj = 25 °C, unless otherwise specified)

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	- -	1.3 1.5	1.5 -	V	I_F=20A T_j=25°C T_j=175°C
Reverse Current	I_R	- -	- -	80 200	μA	V_R=650V T_j=25°C T_j=175°C
Total Capacitive Charge	Q_C	-	62	-	nC	V_R=400V，T_j=25℃ $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	- - -	1176 119 98	- - -	pF	T_j=25℃, f=1MHz V_R=0V V_R=200V V_R=400V

Characteristics Curve:

Fig 1: Forward Characteristics

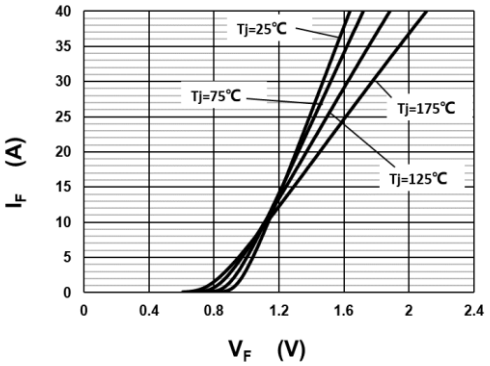


Fig 2: Reverse Characteristics

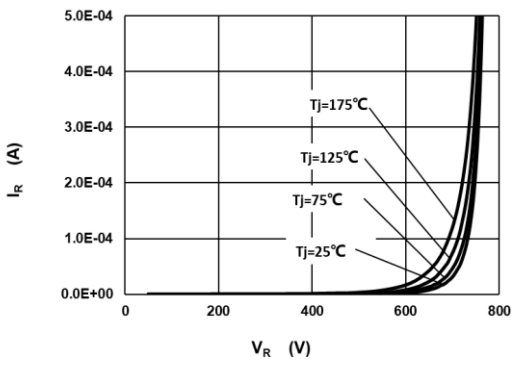


Fig 3: Current Derating

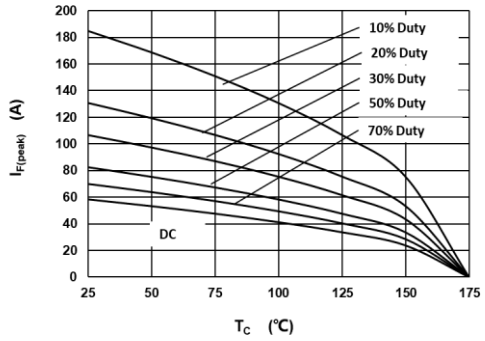


Fig 4: Power Derating

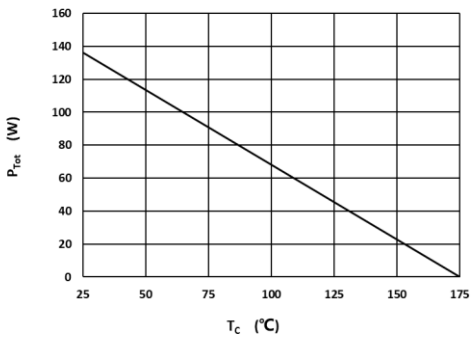


Fig 5: Capacitance vs. Reverse Voltage

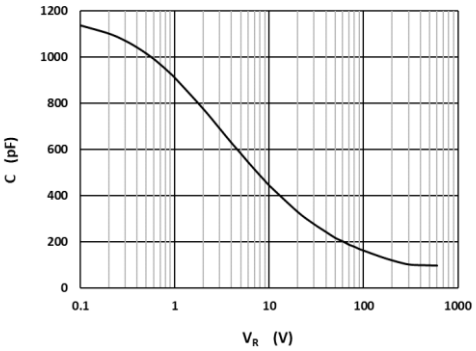


Fig 6: Reverse Charge vs. Reverse Voltage

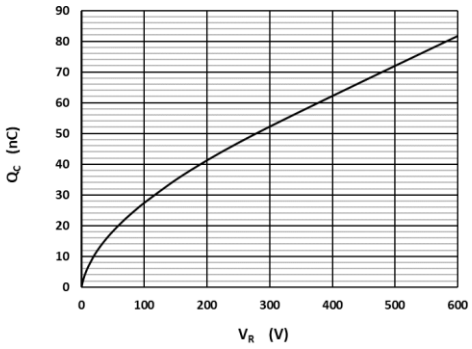


Fig 7: Typical Capacitance Stored Energy

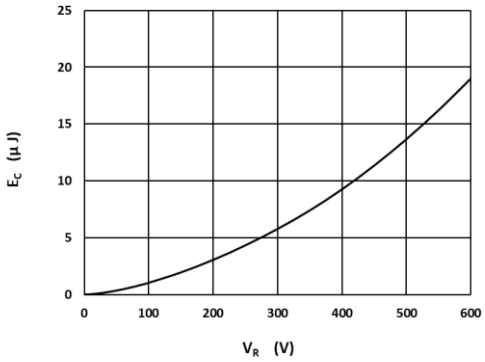
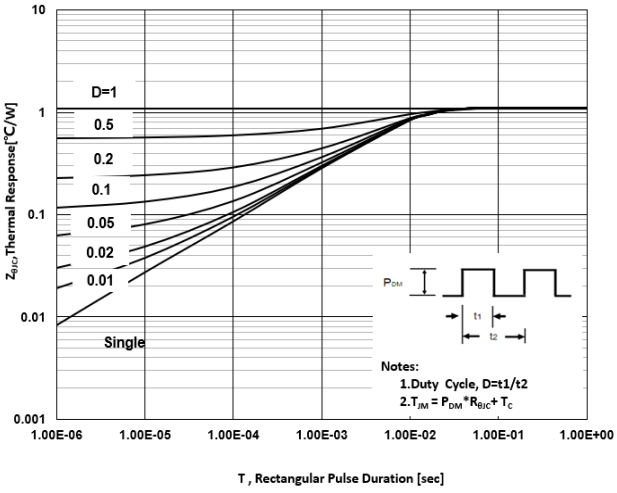
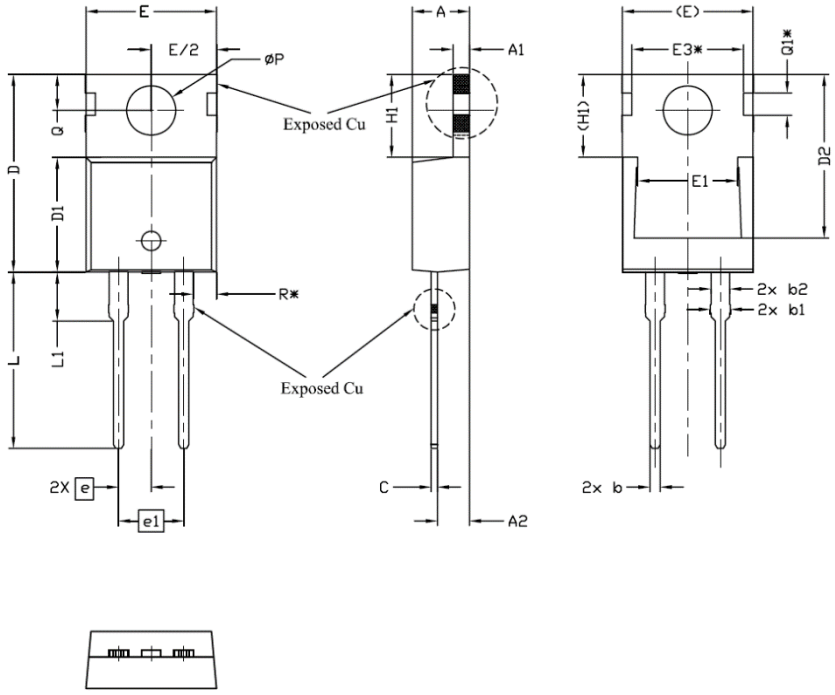


Fig 8: Transient Thermal Impandance



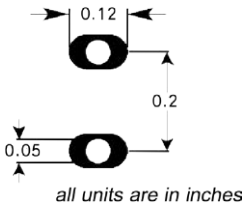
Package Dimensions

Package TO-220C-2L



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.24	4.44	4.64	
A1	1.15	1.27	1.40	
A2	2.30	2.48	2.70	
b	0.70	0.80	0.90	
b1	1.20	1.55	1.75	
b2	1.20	1.45	1.70	
c	0.40	0.50	0.60	
D	14.70	15.37	16.00	4
D1	8.82	8.92	9.02	
D2	12.43	12.73	12.83	5
E	9.96	10.16	10.36	4,5
E1	6.86	7.77	8.89	5
E3*	8.70REF.			
e	2.54BSC			
e1	5.08BSC			
H1	6.30	6.45	6.60	5,6
L	13.47	13.72	13.97	
L1	3.60	3.80	4.00	
ØP	3.75	3.84	3.93	
Q	2.60	2.80	3.00	
Q1*	1.73REF.			
R*	1.82REF.			

Recommended Solder Pad Layout



TO-220C-2L

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HXY MOSFET:

HPTVSUC3D5VB PESDNC2XD5VBF HESD36VD3B HSEN3611D3 HSG3D15B3.3MA 60N06
LM393DR-HXY PJEC5V0M1FN2 AQ15C-01FTG AZ4007-01H HACPDQC5V0-HF HESDSLC3V3D3B
HLY323BC1524L HSEN2411D3 HSTS521050B331 ESD5LM5.0C-HXY PESDLC2FD3V3BH AZ4836-01L
HAZ4007-01H ESD5L5.0C-HXY HRCLAMP3371ZCTFT RLSD32A121V PJSD24CW_R1 HSD15C.TCT
PESDNC2XD5VBL PESDSC2FD5VU TPSMB100CA-VR TPSMB28A-VR BV05C-H HCEZ36V,L3F