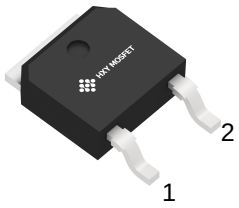
IDM05G120C5XTMA1

Silicon Carbide Schottky Diode

Features

- 1200-Volt Schottky Rectifier
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on V_F



TO-252N-2L

Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway



Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives

Part Number	Package	Qty(PCS)
IDM05G120C5XTMA1	TO-252N-2L	2500

Maximum Ratings (T_C = 25 ˚C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V	
V_{RSM}	Surge Peak Reverse Voltage	1200	V	
I_F	Continuous Forward Current	19.3 9.3 5	A	T_C=25˚C T_C=135˚C T_C=161°C
I_{FRM}	Repetitive Peak Forward Surge Current	25	A	T_C=25˚C, t_P = 10 ms, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	65	A	T_C=25˚C, t_p = 10 ms, Half Sine Wave
P_{tot}	Power Dissipation	99 43	W	T_C=25˚C T_C=110˚C
T_J , T_{stg}	Operating Junction and Storage Temperature	-55 to +175	˚C	
$\int i^2dt$	i²dt value	21.13	A^2s	T_C=25˚C, t_p = 10 ms, Half Sine Wave

Electrical Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
V_{DC}	DC Blocking Voltage	1200			V	
V_F	Forward Voltage		1.38 1.88	1.7 2.5	V	I_F = 5 A T_J=25°C I_F = 5 A T_J=175°C
I_R	Reverse Current		2.5 13	50 100	μA	V_R = 1200 V T_J=25°C V_R = 1200 V T_J=175°C
Q_C	Total Capacitive Charge		28		nC	V_R = 800 V T_J = 25°C
C	Total Capacitance		413 28 22		pF	V_R = 0 V, T_J = 25°C, f = 1 MHz V_R = 400 V, T_J = 25°C, f = 1 MHz V_R = 800 V , T_J = 25°C, f = 1 MHz
E_C	Capacitance Stored Energy		14		μJ	V_R = 800 V

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.51	°C/W

Typical Performance

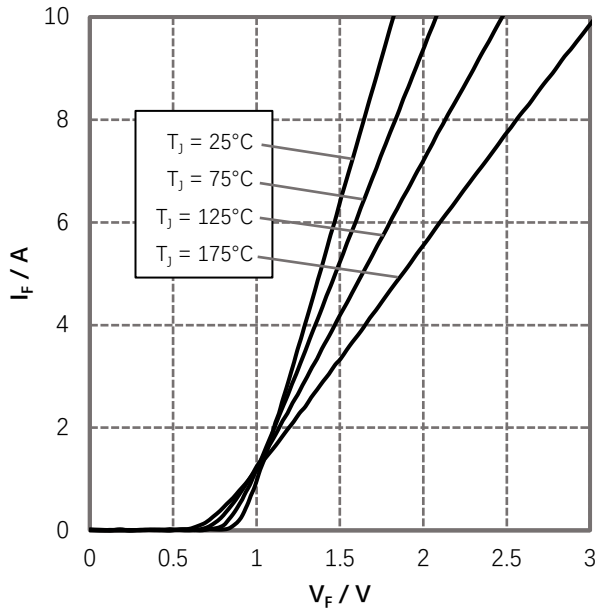


Figure 1. Forward Characteristics

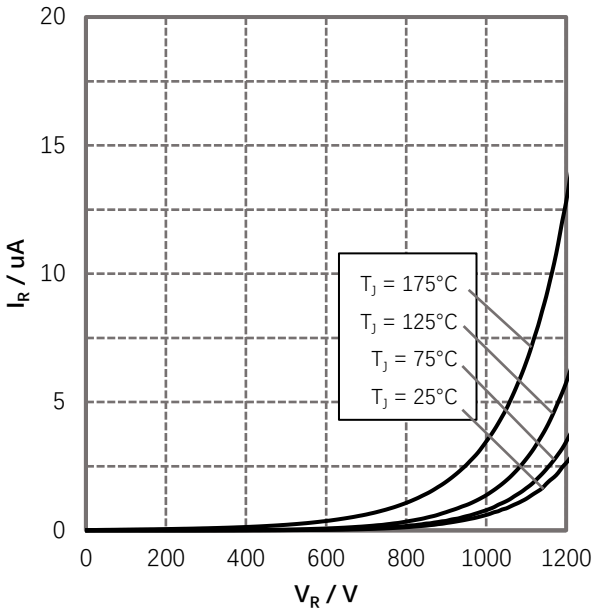


Figure 2. Reverse Characteristics

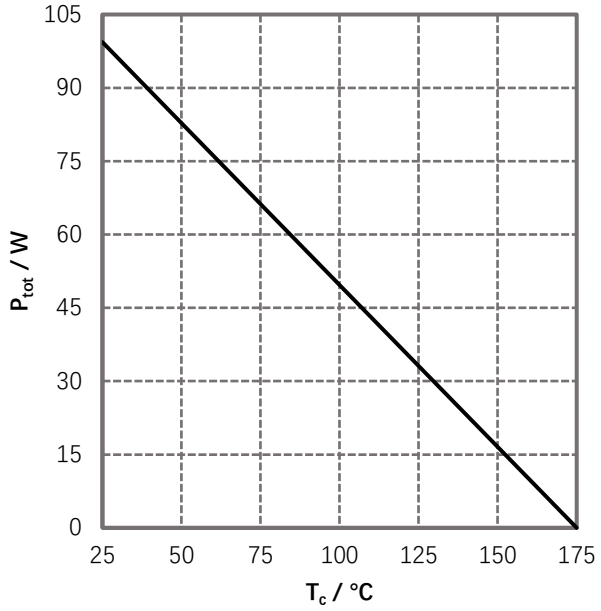


Figure 3. Power Derating

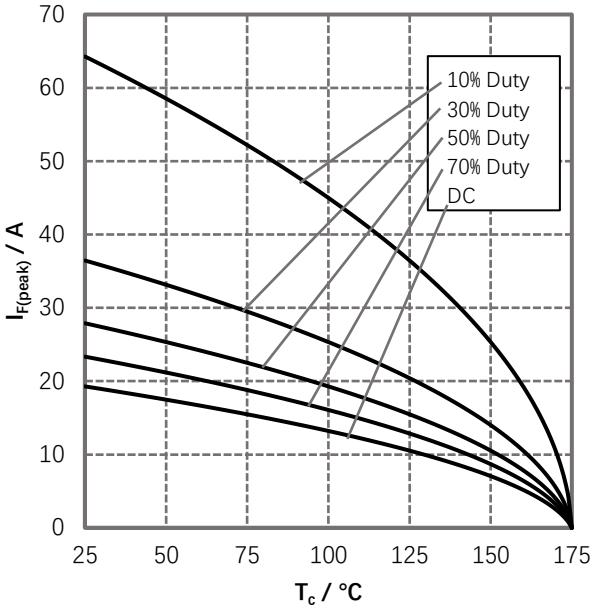


Figure 4. Current Derating

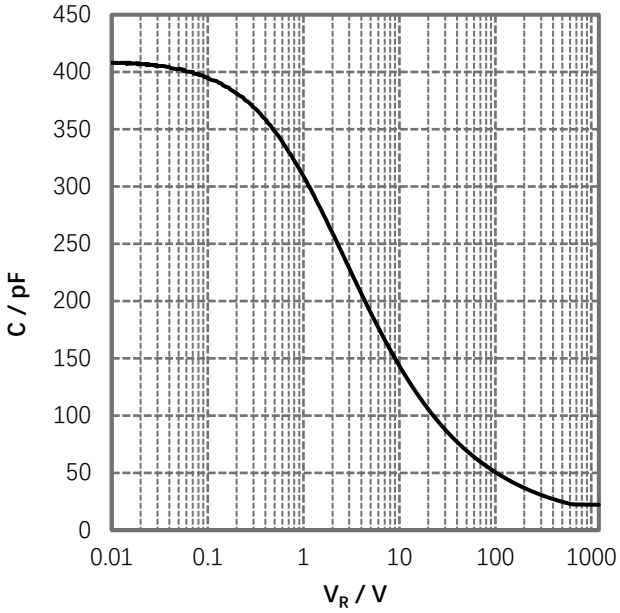


Figure 5. Capacitance vs. Reverse Voltage

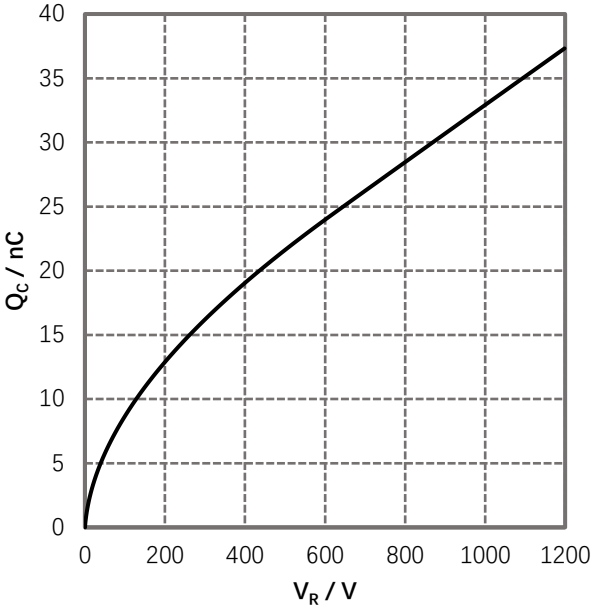


Figure 6. Total Capacitance Charge vs. Reverse Voltage

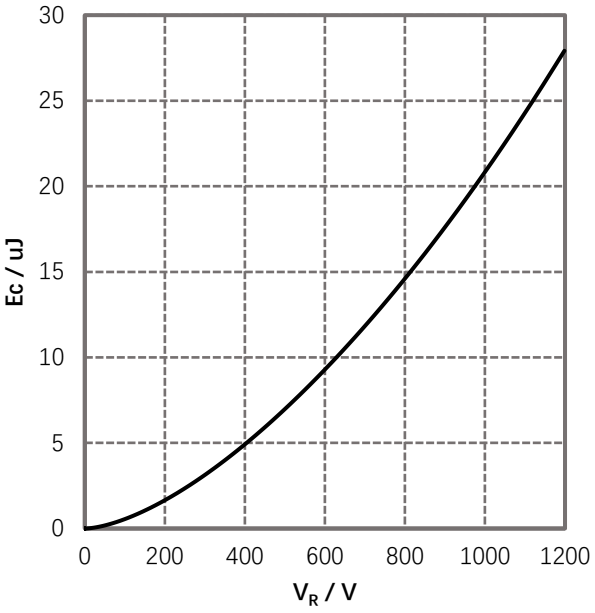


Figure 7. Capacitance Stored Energy

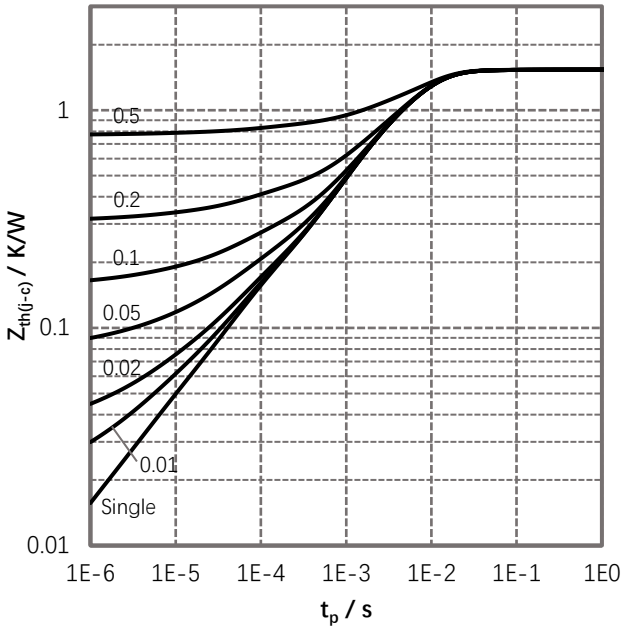
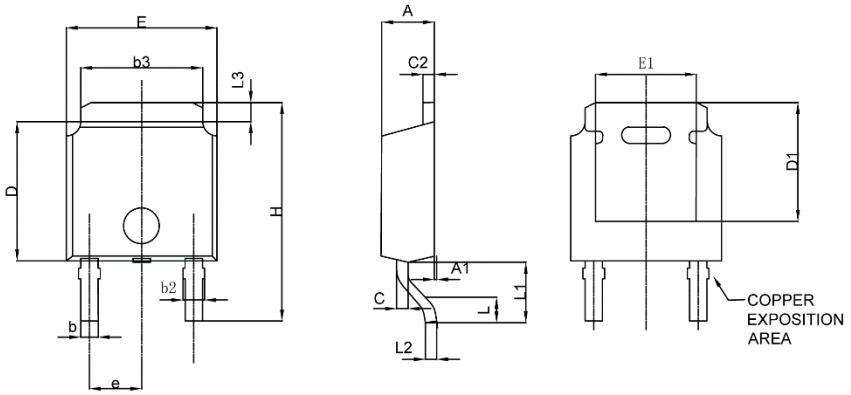


Figure 8. Transient Thermal Impedance

Package Information
TO-252N-2L



Symbol	DIMENSIONAL REQMTS		
	Min	Nom	Max
E	6.35	6.60	6.73
L	1.40	1.52	1.78
L1	2.743REF		
L2	0.508BSC		
L3	0.89	——	1.27
D	5.97	6.10	6.22
H	9.40	10.00	10.40
b	0.64	0.76	0.89
b2	0.76	0.84	1.14
b3	4.95	5.34	5.46
e	2.286BSC		
A	2.18	2.30	2.39
A1	0.00	——	0.13
c	0.46	0.50	0.61
c2	0.46	0.50	0.60
D1	5.21	——	——
E1	4.32	——	——

Note:
1.All Dimension Are In mm
2.Package Body Sizes Exclude Mold Flash,Protrusion Or Gate Burrs.
Mold Flash,Protrusion Or Gate Burrs Shall Not Exceed 0.10mm Per Side.
3.Package Body Sizes Determined At The Outermost Extremes
Of The Plastic Body Exclusive Of Mold Flash,
Gate Burrs And Interlead Flash,
But Including Any Mismatch Between
The Top And Bottom Of The Plastic Body.
4.The Package Top May Be Smaller Than The Package Bottom.
5.Dimension "b" Does Not Include Dambar Protrusion.
Allowable Dambar Protrusion Shall Be 0.10mm
Total In Excess Of "b" Dimension At Maximun Material Condition.
The Dambar Cannot Be Located On The Lower Radius Of The Foot.

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HXY MOSFET:

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