RoHS Compliant

MZPP06A065X3TH

650V SiC Schottky Barrier Diode

General Description

This SiC Schottky Barrier Diode range and revolutionize power applications with near zero switching loss, heightened efficiency, and reduced heat dissipation.

Features

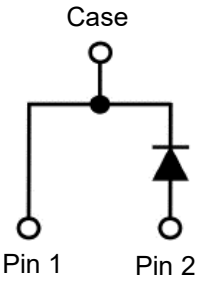
- Unipolar rectifier with surge current
- Zero reverse recovery current
- Fast, temperature-independent switching
- All parts tested to greater than 715V

Applications

- PFC
- SMPS
- UPS

TO-220-2L

Pin 1 Pin 2



- Pin 1 : Cathode
- Pin 2 : Anode

Package outline and symbol

Absolute Maximum Ratings

Characteristics		Symbol	Rating	Unit
Continuous Forward Current	T_C=25℃	I_F	23	A
	T_C=125℃		12	A
	T_C=150℃		8	A
Surge non-repetitive forward current Sine half wave	T_C=25°C, t_P=8.3ms	I_{FSM}	35	A
	T_C=110°C, t_P=8.3ms		31	A
Forward pulse current	T_C=25°C, t_P=10μs	I_{FP}	400	A
i^2t value	T_C=25°C, t_P=8.3ms	$\int i^2 dt$	5	A^2s
	T_C=110°C, t_P=8.3ms		4	A^2s
Repetitive peak reverse voltage		V_{RRM}	650	V
Diode *dv/dt* ruggedness		*dv/dt*	200	V/ns
Power dissipation		P_{tot}	92	W
Operating junction temperature range		T_{vj}	-55~175	℃
Storage temperature range		T_{stg}	-55~175	℃

Thermal Characteristics

Characteristics	Symbol	Rating	Unit
Typical Thermal resistance junction-to-case for Diode	$R_{th(j-c)}$	1.63	℃/W

Ordering Information

Part Number	Marking	Temp. Range	Package	Packing	RoHS Status
MZPP06A065X3TH	06A065X3TH	-55~175℃	TO-220-2L	Tube	Compliant

Electrical Characteristics (T_{vj} = 25℃ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristics						
DC blocking voltage	V_{DC}	I_R = 15uA, T_j = 25℃	650	-	-	V
Breakdown voltage	V_{BR}	I_R = 600uA, T_j = 25℃	715	-	-	V
Diode forward voltage	V_F	I_F = 6A, T_j = 25℃	-	1.39	1.55	V
		I_F = 6A, T_j = 125℃		1.52	--	
		I_F = 6A, T_j = 175℃	-	1.65	2.00	
Reverse current	I_R	V_R = 650V, T_j = 25℃	--	2	15	μA
		V_R = 715V, T_j = 25℃	--	6	--	
		V_R = 650V, T_j = 125℃	--	10	--	
		V_R = 650V, T_j = 175℃	--	32	150	
Total capacitive charge	Q_C	V_R = 400V, T_j = 25℃	--	15	--	nC
Total capacitance	C	V_R = 1V, f = 1MHz	-	229	-	pF
		V_R = 200V, f = 1MHz	-	28	-	
		V_R = 400V, f = 1MHz	-	24	-	

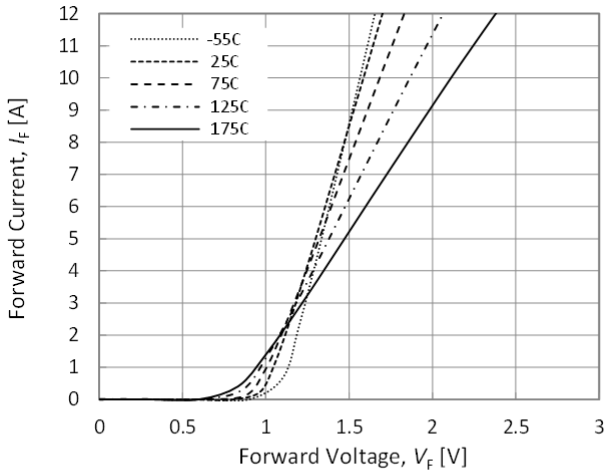


Fig.1. Forward characteristics

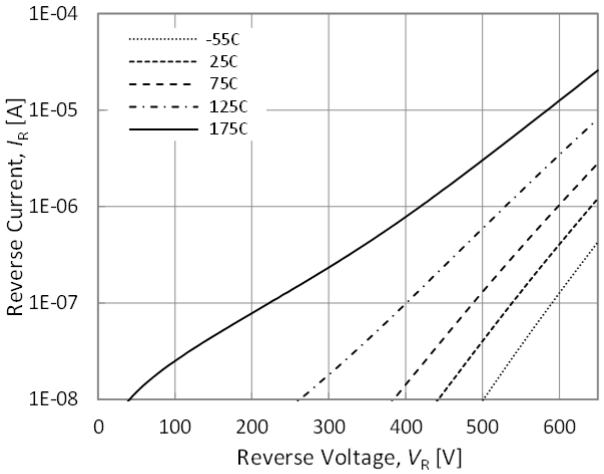


Fig.2. Reverse characteristics

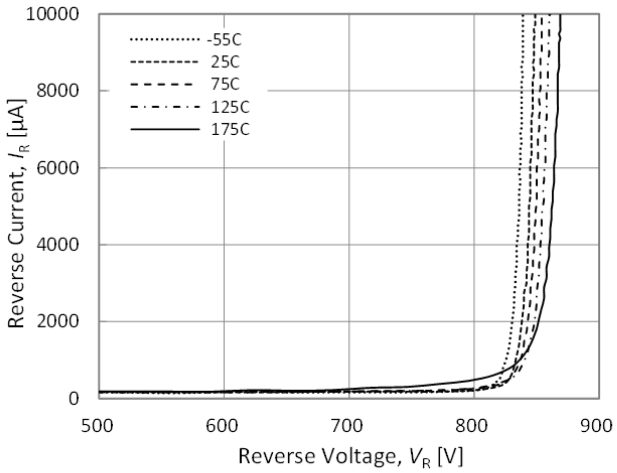


Fig.3. Reverse characteristics

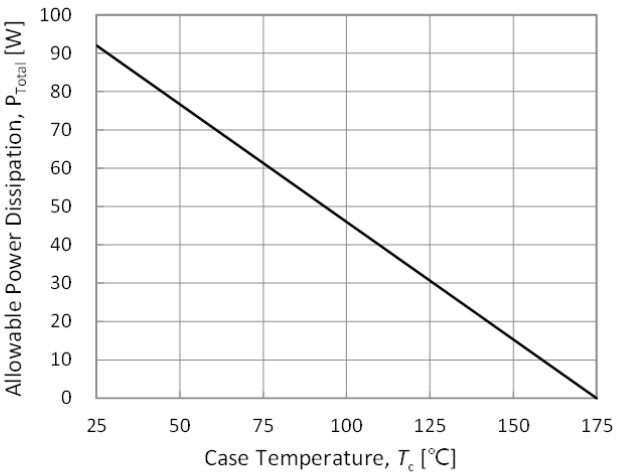


Fig.4. Power Derating

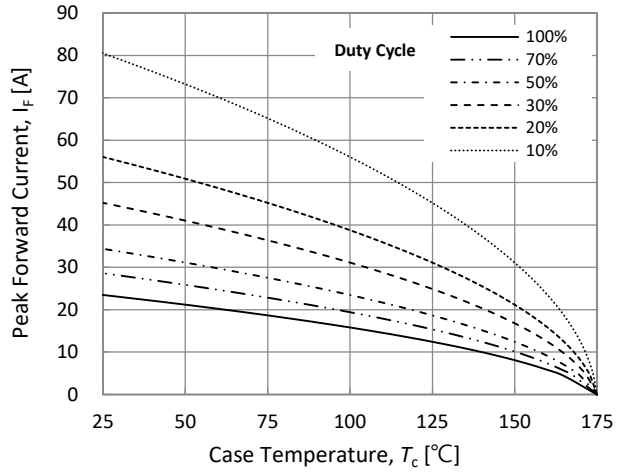


Fig.5. Current Derating

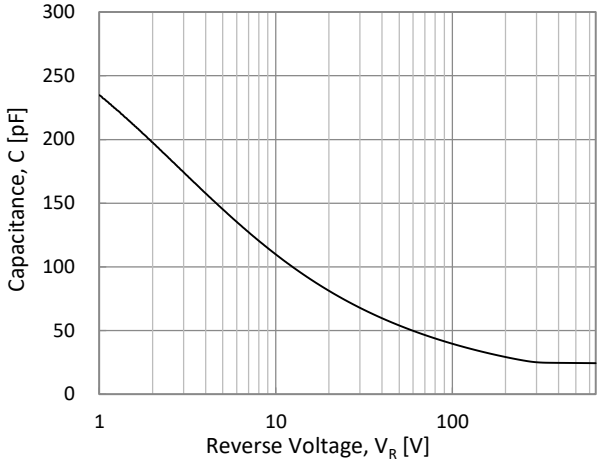


Fig.6. Capacitance

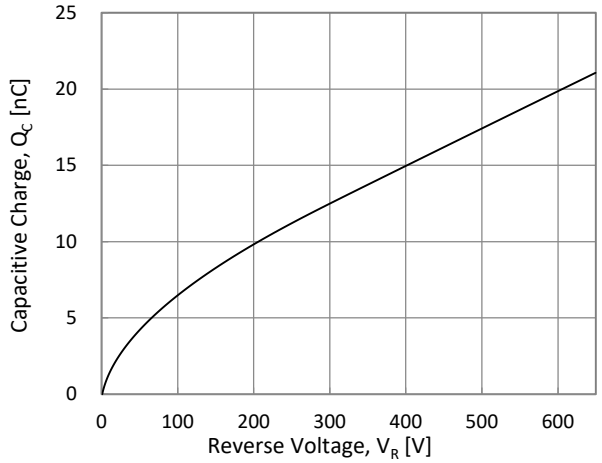


Fig.7. Capacitive Charge

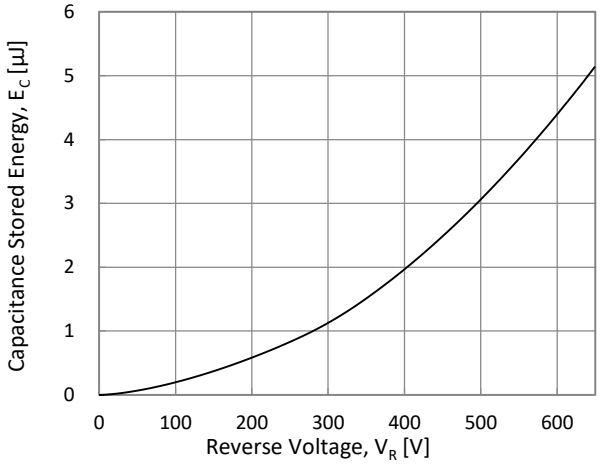


Fig.8. Typical Capacitance Stored Energy

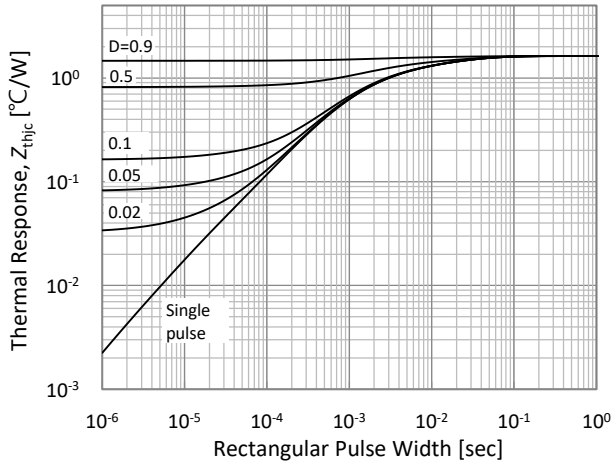
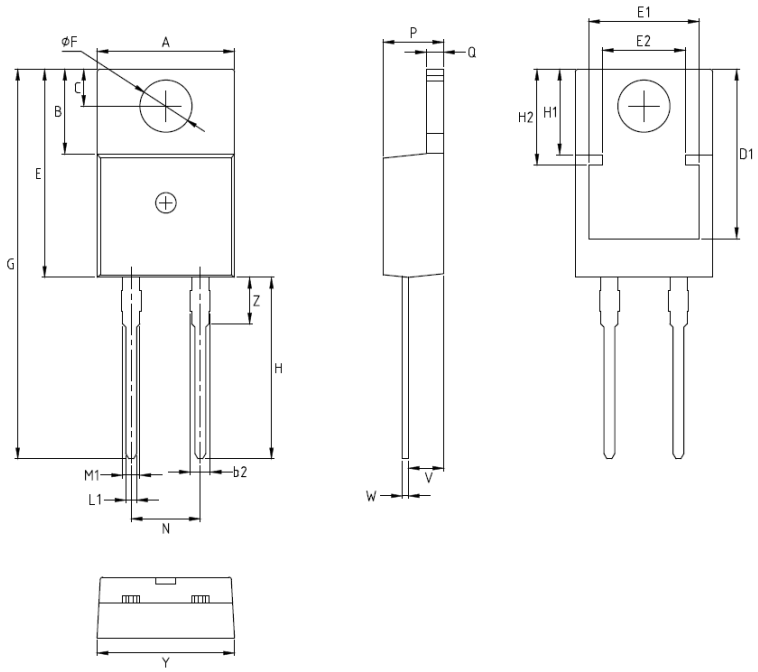


Fig.9. Transient Thermal Impedance

Physical Dimension

TO-220-2L

Dimensions are in millimeters, unless otherwise specified



Dimension	Min(mm)	Max(mm)
A	9.67	10.42
B	5.96	6.48
C	2.54	3.05
D1	12.45 REF.	
E	14.98	15.62
E1	8.12 REF.	
E2	6.10 REF.	
F	3.63	3.89
G	28.06	29.14
H	12.71	13.97
H1	6.22 REF.	
H2	7.04 REF.	
L1	0.63	0.92
M1	1.14	1.4
N	4.95	5.21
P	4.19	4.7
Q	1.22	1.37
V	2.38	2.8
W	0.35	0.64
Z	3.3	3.81
b2	1.14	1.55

Note: Package body size, length and width do not include mold flash, protrusions and gate burrs.

DISCLAIMER:

The Products are not designed for use in hostile environments, including, without limitation, aircraft, nuclear power generation, medical appliances, and devices or systems in which malfunction of any Product can reasonably be expected to result in a personal injury. Seller's customers using or selling Seller's products for use in such applications do so at their own risk and agree to fully defend and indemnify Seller.