6A, 400V - 600V Super Fast Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Very low profile, typical height of 1.1mm
- 175°C operating junction temperature
- Glass passivated chip junction
- Low conduction loss
- Low leakage current
- High forward surge capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

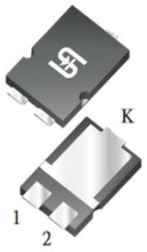
- DC to DC converter
- Automotive application
- Car lighting
- Snubber
- Freewheeling application

MECHANICAL DATA

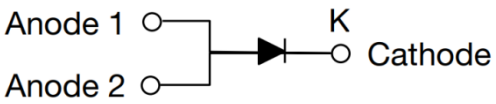
- Case: TO-277A (SMPC)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.095g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	6	A
V_{RRM}	400 - 600	V
I_{FSM}	100	A
$T_{J\ MAX}$	175	°C
Package	TO-277A (SMPC)	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE



TO-277A (SMPC)



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER	**SYMBOL**	**TPMR6GH**	**TPMR6JH**	**UNIT**
Marking code on the device		MR6G	MR6J	
Repetitive peak reverse voltage	V_{RRM}	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	280	420	V
Forward current	I_F	6		A
Surge peak forward current 8.3ms single half sine wave superimposed on rated load	I_{FSM}	100		A
Junction temperature	T_J	-55 to +175		°C
Storage temperature	T_{STG}	-55 to +175		°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance(1)	$R_{\Theta JL}$	9.5	°C/W
Junction-to-ambient thermal resistance(2)	$R_{\Theta JA}$	86	°C/W

Notes:

1. Mounted on FR4 PCB with 16mm x 16mm Cu pad area
2. Free air, mounted on recommended pad

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage(1)	TPMR6GH	I_F = 6A, T_J = 25°C	V_F	-	1.20	V
	TPMR6JH	I_F = 6A, T_J = 125°C		-	1.00	V
	TPMR6GH	I_F = 6A, T_J = 25°C		-	1.80	V
	TPMR6JH	I_F = 6A, T_J = 125°C		-	-	V
Reverse current @ rated V_R(2)		T_J = 25°C	I_R	-	10	μA
		T_J = 125°C		-	500	μA
Junction capacitance		1MHz, V_R = 4.0V	C_J	60	-	pF
Reverse recovery time	TPMR6GH	I_F = 0.5A, I_R = 1.0A I_{rr} = 0.25A	t_{rr}	-	35	ns
	TPMR6JH			-	40	ns
Reverse recovery time	TPMR6GH	I_F = 1A, di/dt = -50A/μs V_R = 30V	t_{rr}	-	60	ns
	TPMR6JH			-	-	ns

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE(1)	PACKAGE	PACKING
TPMR6xH	TO-277A (SMPC)	6,000 / Tape & Reel

Notes:

1. “x” defines voltage from 400V(TPMR6GH) to 600V(TPMR6JH)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

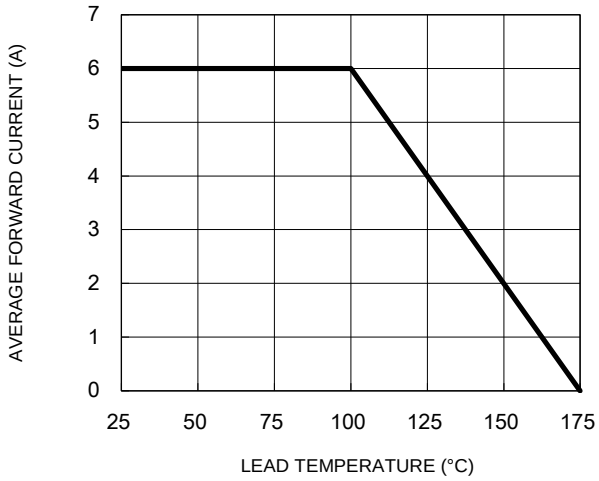


Fig.2 Typical Junction Capacitance

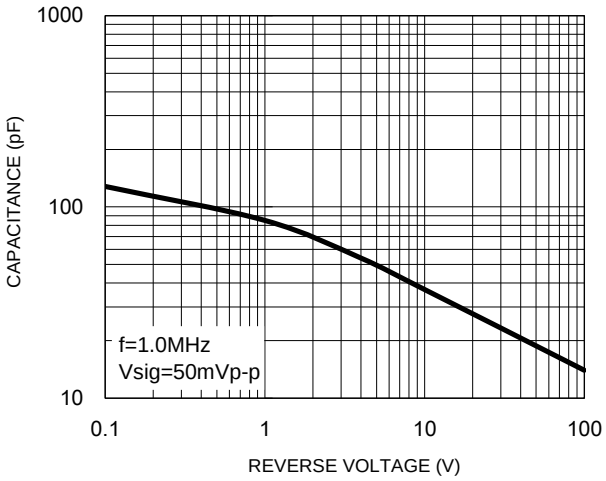


Fig.3 Typical Reverse Characteristics

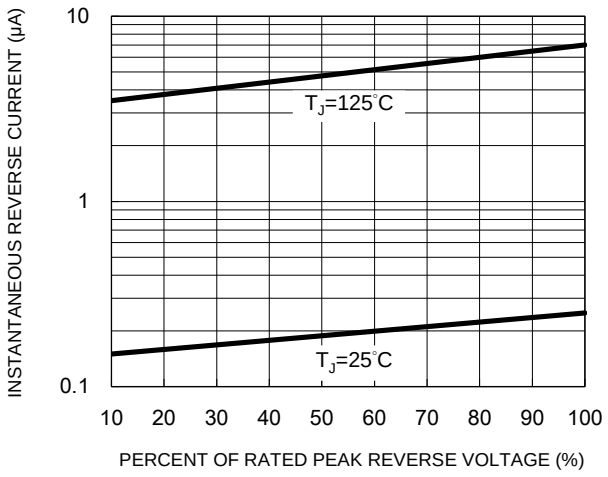


Fig.4 Typical Forward Characteristics

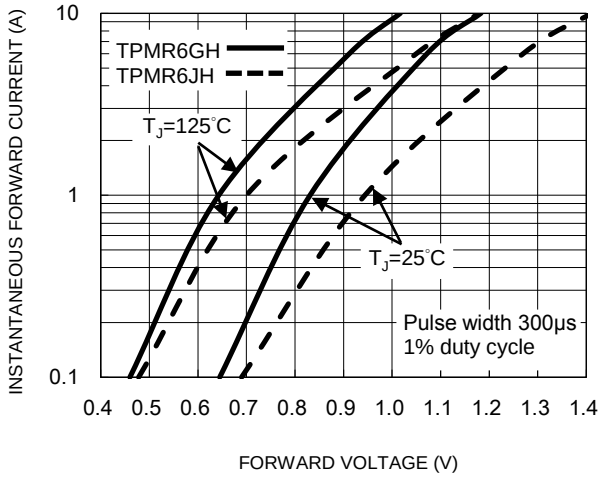
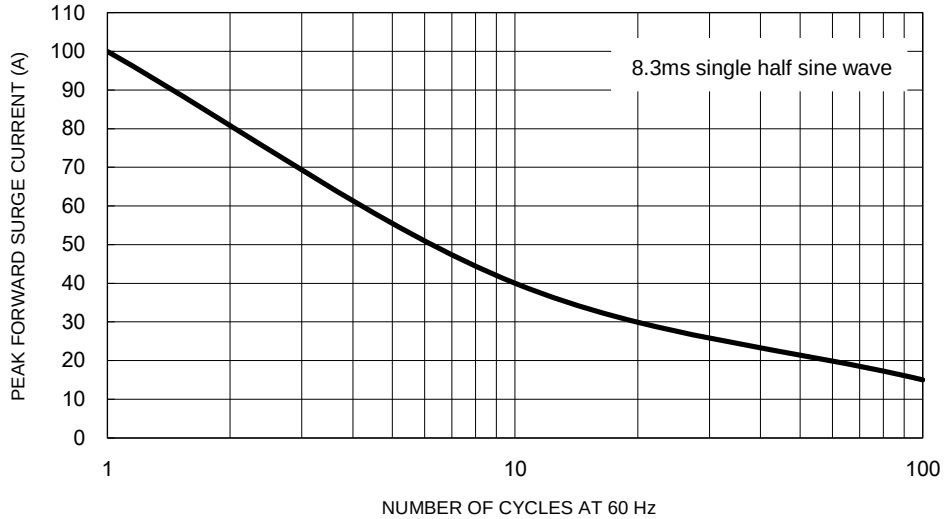
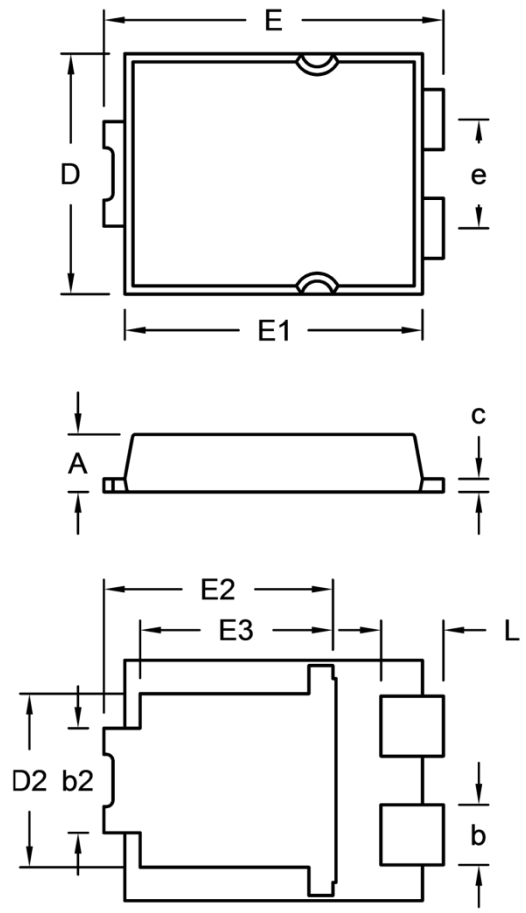


Fig.5 Maximum Non-Repetitive Forward Surge Current



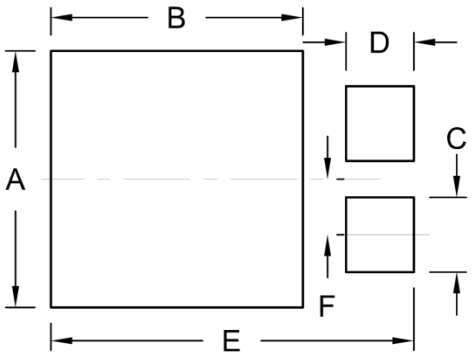
PACKAGE OUTLINE DIMENSIONS

TO-277A (SMPC)



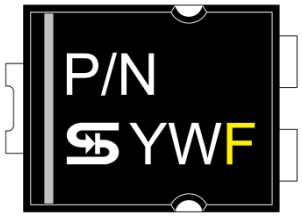
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.000	1.200	0.039	0.047
b	1.000	1.300	0.039	0.051
b2	1.850	2.150	0.073	0.085
c	0.175	0.325	0.007	0.013
D	4.550	4.650	0.179	0.183
D2	3.170	3.470	0.125	0.137
E	6.350	6.650	0.250	0.262
E1	5.650	5.750	0.222	0.226
E2	4.235	4.535	0.167	0.179
E3	3.540	3.840	0.139	0.151
e	1.930	2.230	0.076	0.088
L	1.043	1.343	0.041	0.053

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	4.80	0.189
B	4.72	0.186
C	1.40	0.055
D	1.27	0.050
E	6.80	0.268
F	1.04	0.041

MARKING DIAGRAM



P/N = Marking Code
YW = Date Code
F = Factory Code

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