2A, 400V - 600V ESD Capability Rectifier

FEATURES

- High ESD capability
- Glass passivated chip junction
- Low forward voltage drop
- Ideal for automated placement
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

APPLICATIONS

- General purpose
- Polarity protection

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	2	A
V_{RRM}	400 - 600	V
I_{FSM}	40	A
$T_{J\ MAX}$	175	°C
Package	Thin SMA	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

MECHANICAL DATA

- Case: Thin SMA
- 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: 0.030g (approximately)

Thin SMA

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)					
PARAMETER		**SYMBOL**	**TSD2GAL**	**TSD2JAL**	**UNIT**
Marking code on the device			D2GAL	D2JAL	
Repetitive peak reverse voltage		V_{RRM}	400	600	V
Reverse voltage, total rms value		$V_{R(RMS)}$	280	420	V
Forward current		I_F	2		A
Surge peak forward current single half sine-wave superimposed on rated load	t = 8.3ms	I_{FSM}	40		A
	t = 1.0ms		130		
Junction temperature		T_J	-40 to +175		°C
Storage temperature		T_{STG}	-55 to +175		°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\Theta JL}$	15	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	75	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	15	°C/W

Thermal Performance Note: Units mounted on PCB (5mm x 5mm Cu pad test board)

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage(1)	I_F = 1A, T_J = 25°C	V_F	0.89	-	V
	I_F = 2A, T_J = 25°C		0.94	1.1	V
	I_F = 1A, T_J = 125°C		0.77	-	V
	I_F = 2A, T_J = 125°C		0.83	-	V
Reverse current @ rated V_R(2)	T_J = 25°C	I_R	-	1	μA
	T_J = 125°C		5	-	μA
Junction capacitance	1MHz, V_R = 4.0V	C_J	15	-	pF

Notes:

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

IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS (T_A = 25°C unless otherwise noted)

STANDARD	TEST TYPE	TEST CONDITIONS	SYMBOL	CLASS	VALUE
AEC-Q101-001	Human body mode	C=100pF, R=1.5kΩ	Vc	H3B	≥8kV
IEC 61000-4-2	Contact mode	C=150pF, R=330Ω		x	≥10kV
	Air-discharge mode	C=150pF, R=330Ω		4	≥15kV

ORDERING INFORMATION

ORDERING CODE(1)	PACKAGE	PACKING
TSD2xAL	Thin SMA	14,000/ Tape & Reel

Notes:

1. "x" defines voltage from 400V(TSD2GAL) to 600V(TSD2JAL)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

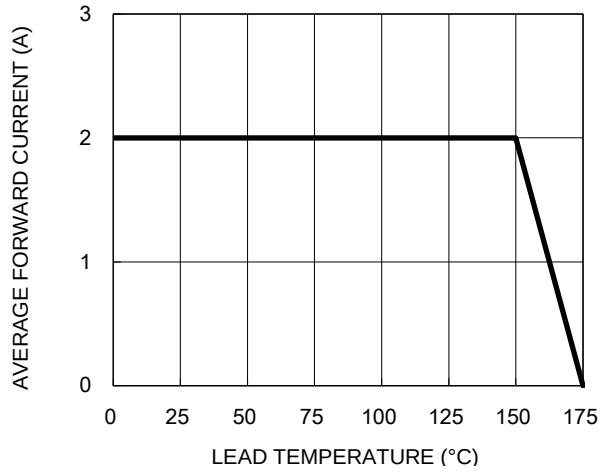


Fig.2 Typical Junction Capacitance

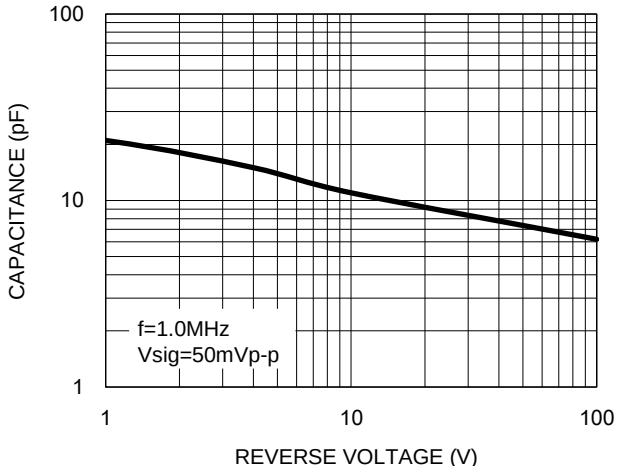


Fig.3 Typical Reverse Characteristics

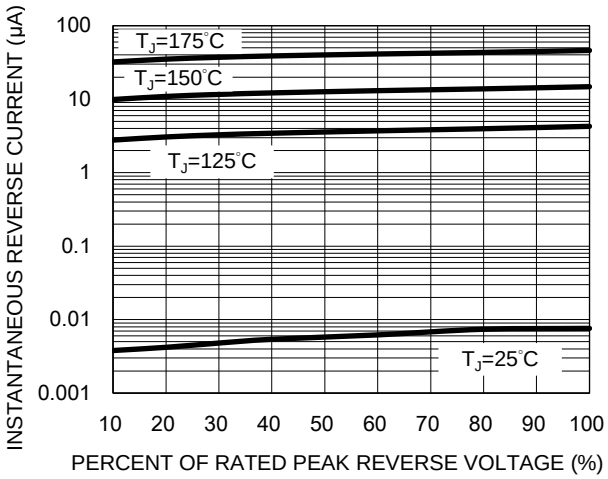


Fig.4 Typical Forward Characteristics

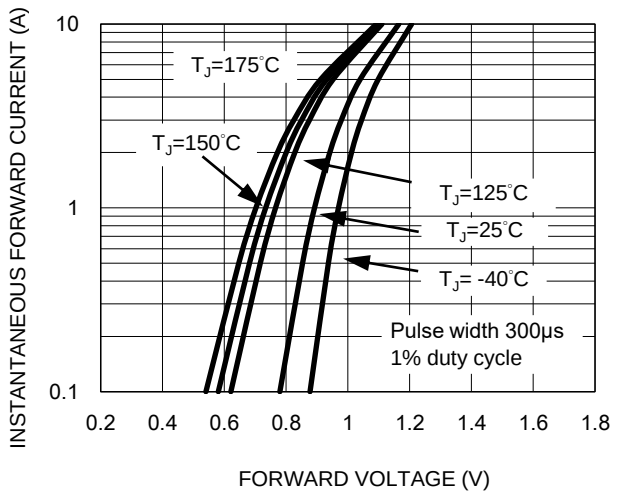
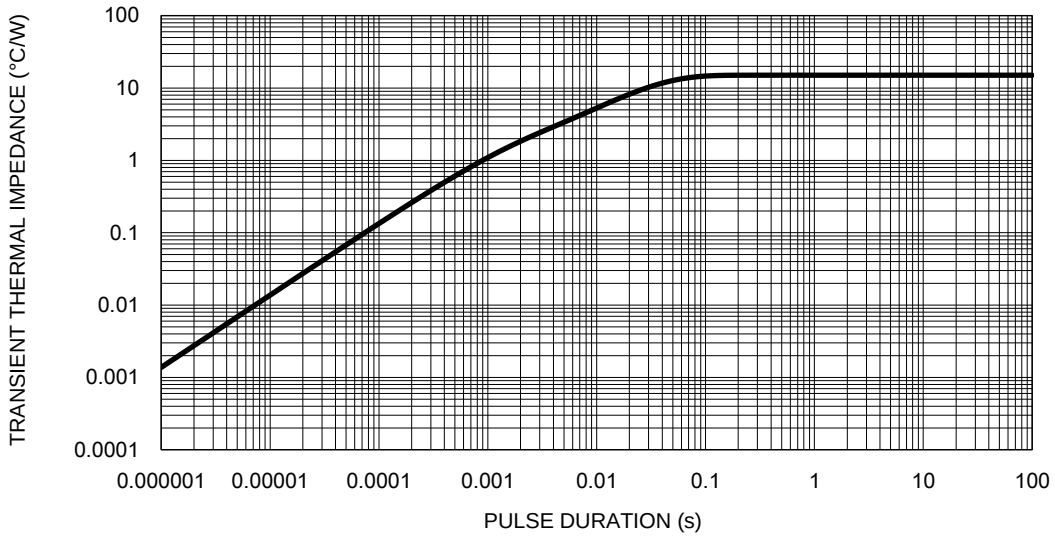
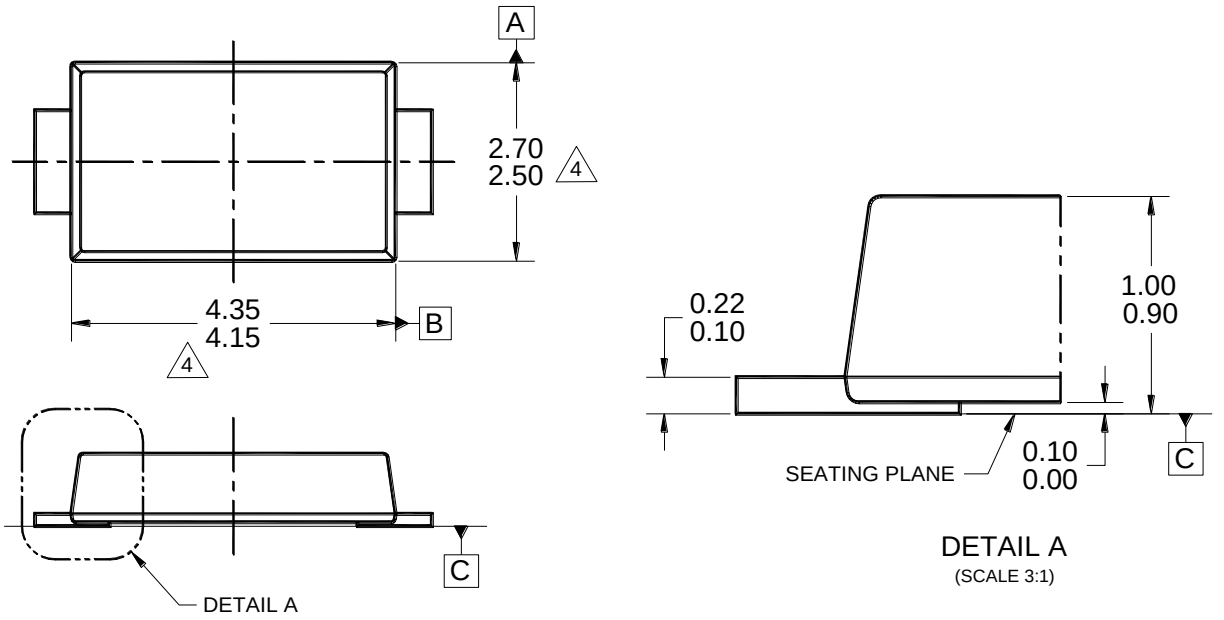


Fig.5 Typical Transient Thermal Impedance

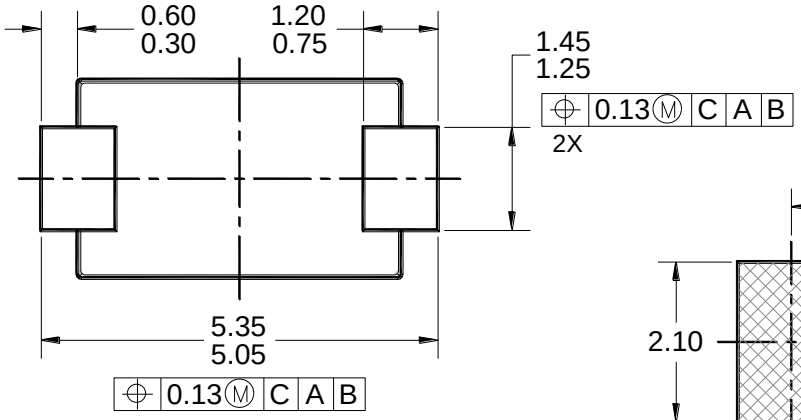


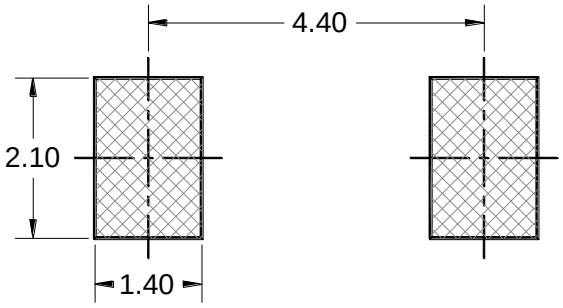
PACKAGE OUTLINE DIMENSIONS

Thin SMA

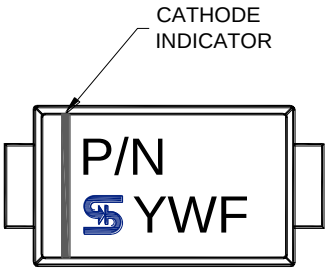


DETAIL A
(SCALE 3:1)





SUGGESTED PAD LAYOUT



MARKING DIAGRAM

P/N = MARKING CODE
YW = DATE CODE
F = FACTORY CODE

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-221, VARIATION AC, ISSUE B.
4. MODED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. SUGGESTED PAD LAYOUT IS FOR REFERENCE PURPOSE ONLY.
6. DWG NO. REF: HQ2SD07-TSMA-074 REV A.

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