

1A, 30V - 60V Schottky Barrier Surface Mount Rectifier

FEATURES

- Very low profile - typical height of 0.68mm
- Low power loss, high efficiency
- Ideal for automated placement
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- DC to DC converter

MECHANICAL DATA

- Case: Micro 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: 0.006g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	1	A
V_{RRM}	30 - 60	V
I_{FSM}	25	A
T_{JMAX}	150	°C
Package	Micro SMA	
Configuration	Single die	



Micro SMA



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	SS13M	SS14M	SS16M	UNIT
Marking code on the device		A	B	C	
Repetitive peak reverse voltage	V_{RRM}	30	40	60	V
Reverse voltage, total rms value	$V_{R(RMS)}$	21	28	42	V
Forward current	I_F	1			A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	25			A
Junction temperature	T_J	-55 to +150			°C
Storage temperature	T_{STG}	-55 to +150			°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	30	$^{\circ}\text{C/W}$
Junction-to-ambient thermal resistance	$R_{\theta JA}$	125	$^{\circ}\text{C/W}$
Junction-to-case thermal resistance	$R_{\theta JC}$	40	$^{\circ}\text{C/W}$

ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)							
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT	
Forward voltage ⁽¹⁾	SS13M	$I_F = 0.5\text{A}, T_J = 25^{\circ}\text{C}$	V_F	0.45	-	V	
		$I_F = 1.0\text{A}, T_J = 25^{\circ}\text{C}$		0.52	0.55	V	
	SS14M	$I_F = 0.5\text{A}, T_J = 125^{\circ}\text{C}$		0.35	-	V	
		$I_F = 1.0\text{A}, T_J = 125^{\circ}\text{C}$		0.46	0.50	V	
	SS16M	$I_F = 0.5\text{A}, T_J = 25^{\circ}\text{C}$	V_F	0.51	-	V	
		$I_F = 1.0\text{A}, T_J = 25^{\circ}\text{C}$		0.64	0.68	V	
		$I_F = 0.5\text{A}, T_J = 125^{\circ}\text{C}$		0.46	-	V	
		$I_F = 1.0\text{A}, T_J = 125^{\circ}\text{C}$		0.57	0.60	V	
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^{\circ}\text{C}$	I_R	-	50	μA	
		$T_J = 125^{\circ}\text{C}$		-	10	mA	
Junction capacitance		1MHz, $V_R = 4.0\text{V}$	C_J	50	-	pF	
				SS13M	40	-	pF
				SS16M			

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION		
ORDERING CODE⁽¹⁾	PACKAGE	PACKING
SS1xM	Micro SMA	12,000 / Tape & Reel

Notes:

1. "x" defines voltage from 30V(SS13M) to 60V(SS16M)

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Forward Current Derating Curve

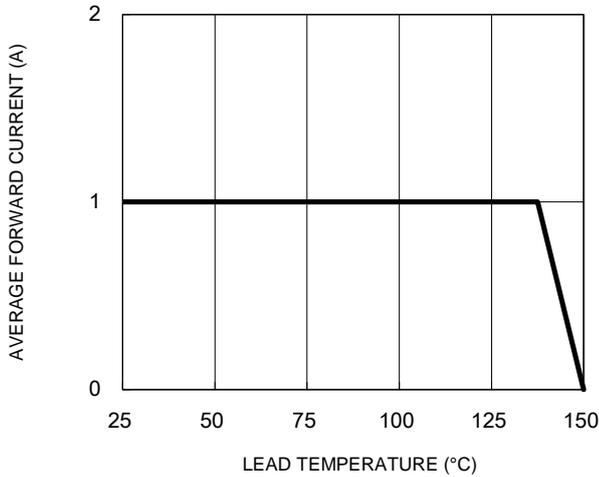


Fig.2 Typical Junction Capacitance

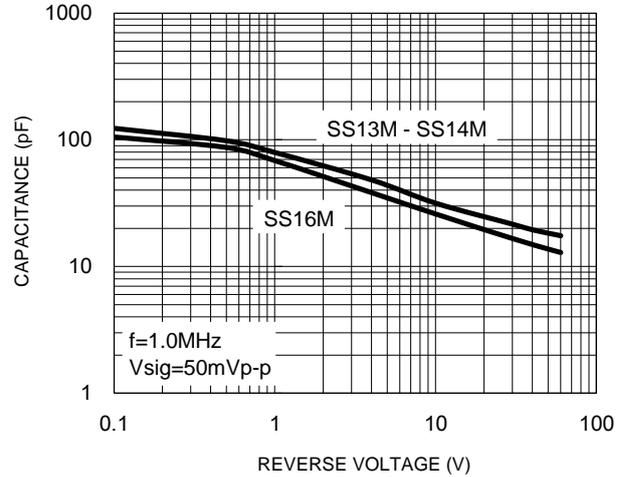


Fig.3 Typical Reverse Characteristics

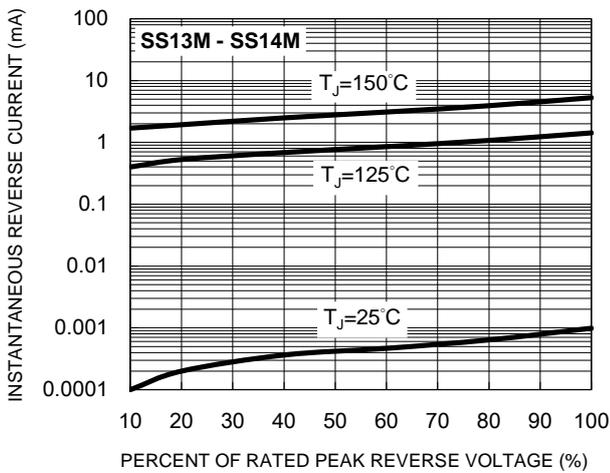


Fig.4 Typical Forward Characteristics

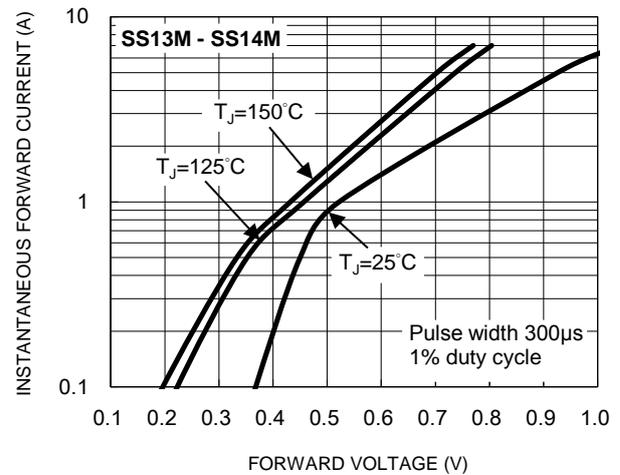


Fig.5 Typical Reverse Characteristics

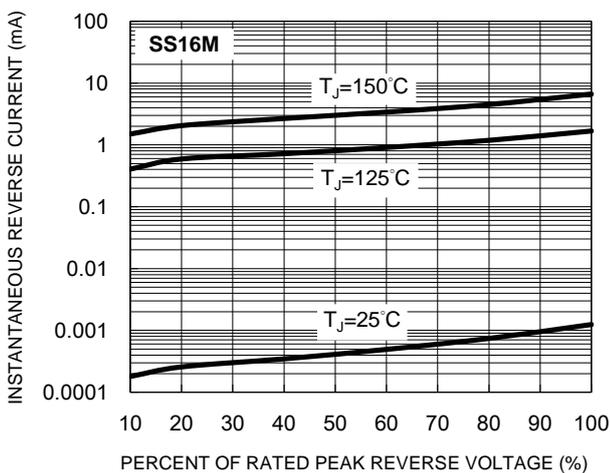
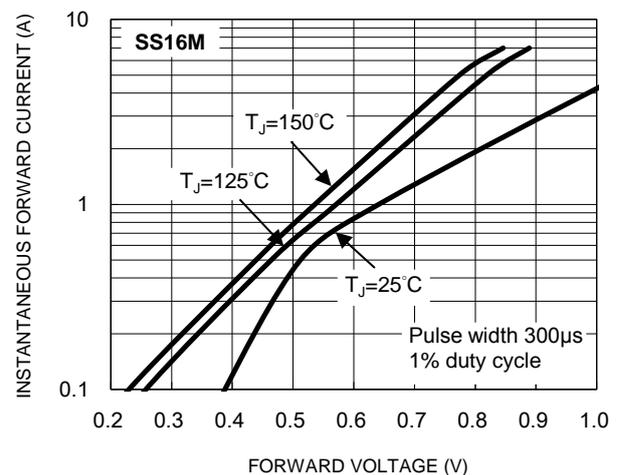


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.7 Maximum Non-Repetitive Forward Surge Current

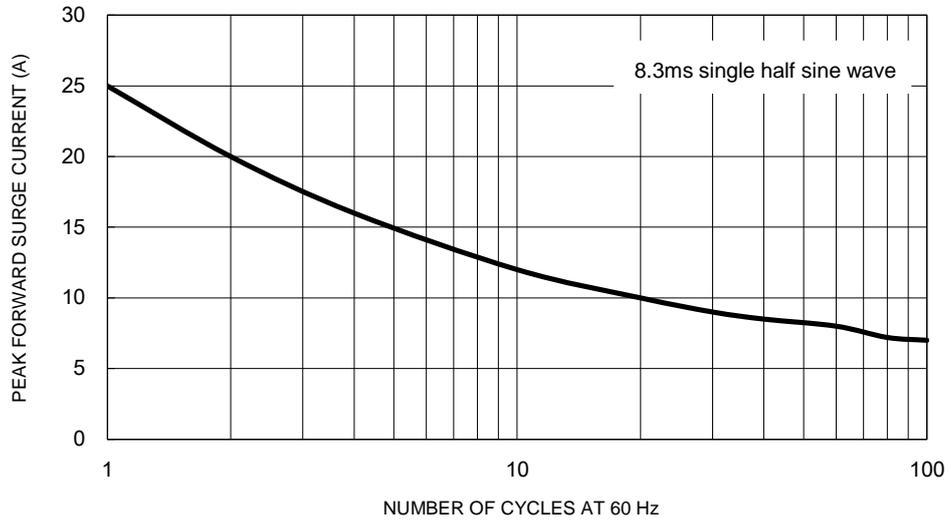
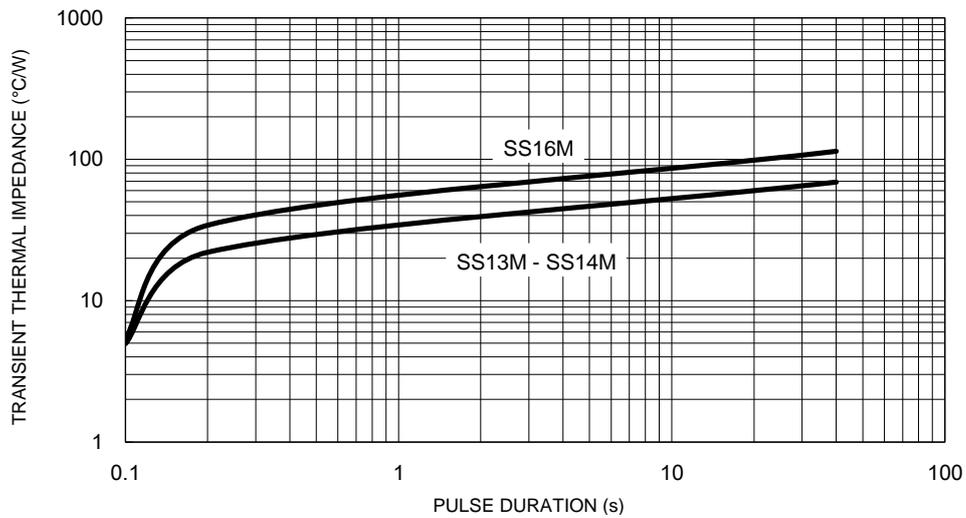
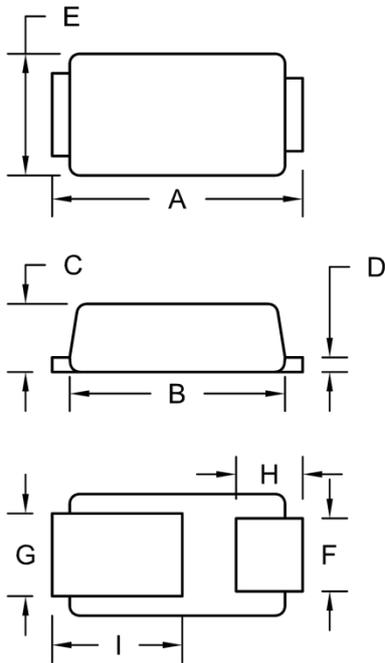


Fig.8 Typical Transient Thermal Impedance



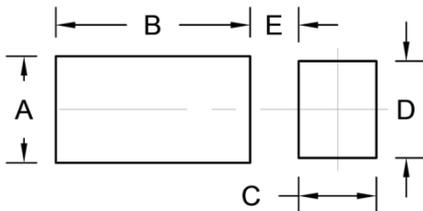
PACKAGE OUTLINE DIMENSIONS

Micro SMA



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.30	2.70	0.091	0.106
B	2.10	2.30	0.083	0.091
C	0.63	0.73	0.025	0.029
D	0.10	0.20	0.004	0.008
E	1.15	1.35	0.045	0.053
F	0.65	0.85	0.026	0.034
G	0.75	0.95	0.030	0.037
H	0.55	0.75	0.022	0.030
I	1.10	1.50	0.043	0.059

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.10	0.043
B	2.00	0.079
C	0.80	0.031
D	1.00	0.039
E	0.50	0.020

MARKING DIAGRAM



P/N = Marking Code
YW = Data Code

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.