

## 1A, 20V - 150V Schottky Barrier Surface Mount Rectifier

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- Guard ring for overvoltage protection
- High surge current capability
- 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
- Monitor
- DC/DC converters
- TV

### MECHANICAL DATA

- Case: DO-214AC (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: 0.060g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	1	A
$V_{RRM}$	20 - 150	V
$I_{FSM}$	40	A
$T_{J\ MAX}$	125, 150	°C
Package	DO-214AC (SMA)	
Configuration	Single die	



**DO-214AC (SMA)**



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	SS12	SS13	SS14	SS15	SS16	SS19	SS110	SS115	UNIT
Marking code on the device		SS12	SS13	SS14	SS15	SS16	SS19	SS110	SS115	
Repetitive peak reverse voltage	$V_{RRM}$	20	30	40	50	60	90	100	150	V
Reverse voltage, total rms value	$V_{R(RMS)}$	14	21	28	35	42	63	70	105	V
Forward current	$I_F$	1								A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	40								A
Critical rate of rise of off-state voltage	dV/dt	10,000								V/ $\mu\text{s}$
Junction temperature	$T_J$	- 55 to +125				- 55 to +150				°C
Storage temperature	$T_{STG}$	- 55 to +150								°C

<b>THERMAL PERFORMANCE</b>			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	28	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	88	°C/W

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)									
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT			
Forward voltage <sup>(1)</sup>	SS12 SS13 SS14	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	0.50	V			
	SS15 SS16			-	0.75	V			
	SS19 SS110			-	0.80	V			
	SS115			-	0.95	V			
	SS12 SS13 SS14	$I_F = 1\text{A}, T_J = 100^\circ\text{C}$		-	0.40	V			
	SS15 SS16			-	0.65	V			
	SS19 SS110			-	0.70	V			
	SS115			-	0.85	V			
	Reverse current @ rated $V_R$ <sup>(2)</sup>			SS12 SS13 SS14 SS15 SS16	$T_J = 25^\circ\text{C}$	$I_R$	-	0.2	mA
				SS19 SS110 SS115			-	0.1	mA
SS12 SS13 SS14		$T_J = 100^\circ\text{C}$	-	6	mA				
SS15 SS16			-	5	mA				
SS19 SS110 SS115			-	-	mA				
SS12 SS13 SS14		$T_J = 125^\circ\text{C}$	-	-	mA				
SS15 SS16			-	-	mA				
SS19 SS110 SS115			-	2	mA				

**Notes:**

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

**ORDERING INFORMATION**

<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
SS1x	DO-214AC (SMA)	7,500 / Tape & Reel

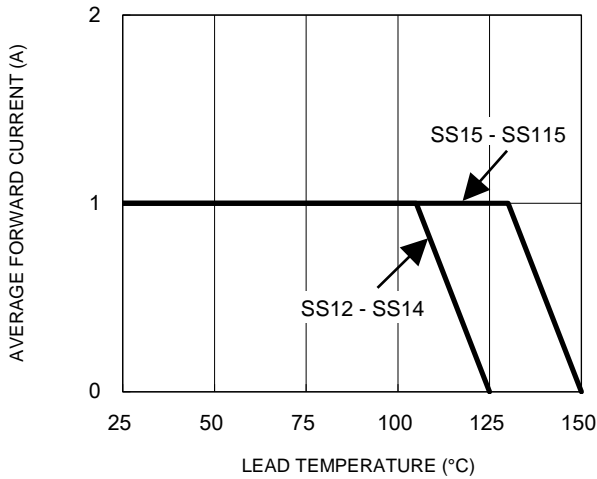
**Notes:**

1. “x” defines voltage from 20V(SS12) to 150V(SS115)

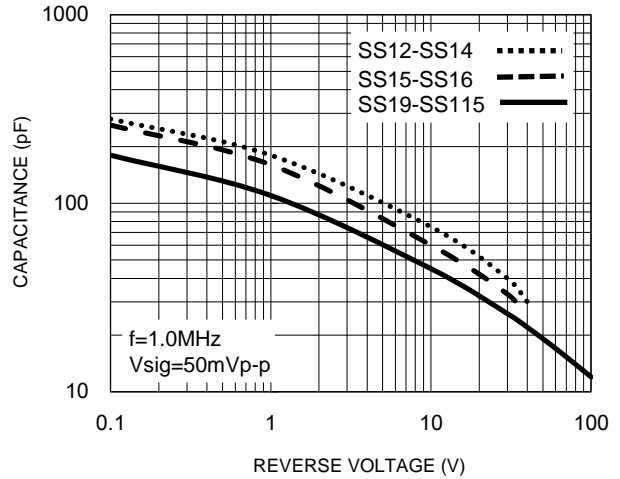
**CHARACTERISTICS CURVES**

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

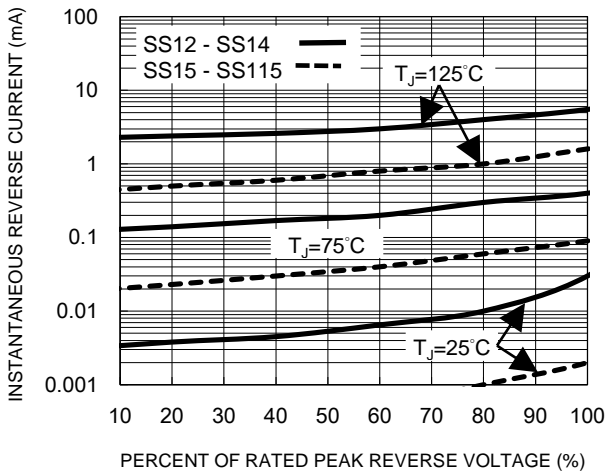
**Fig.1 Forward Current Derating Curve**



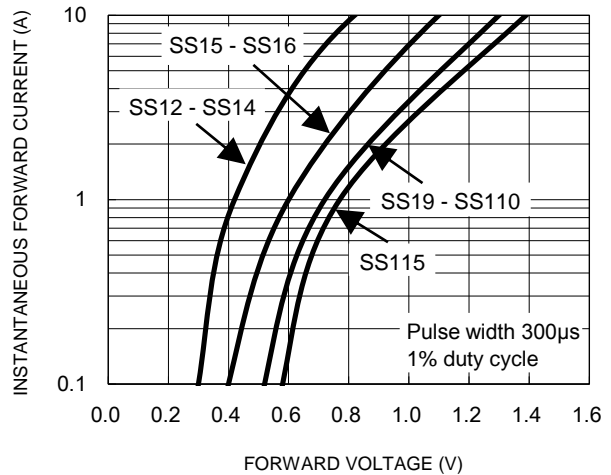
**Fig.2 Typical Junction Capacitance**



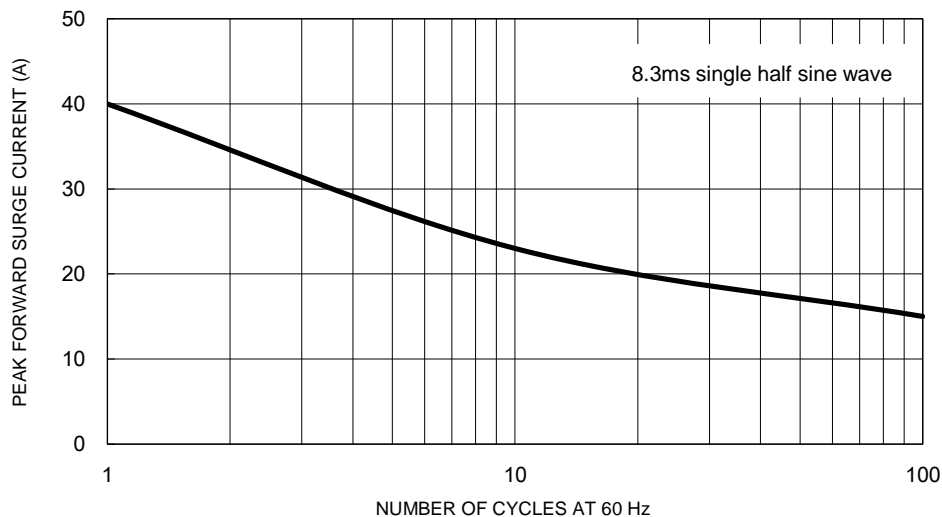
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



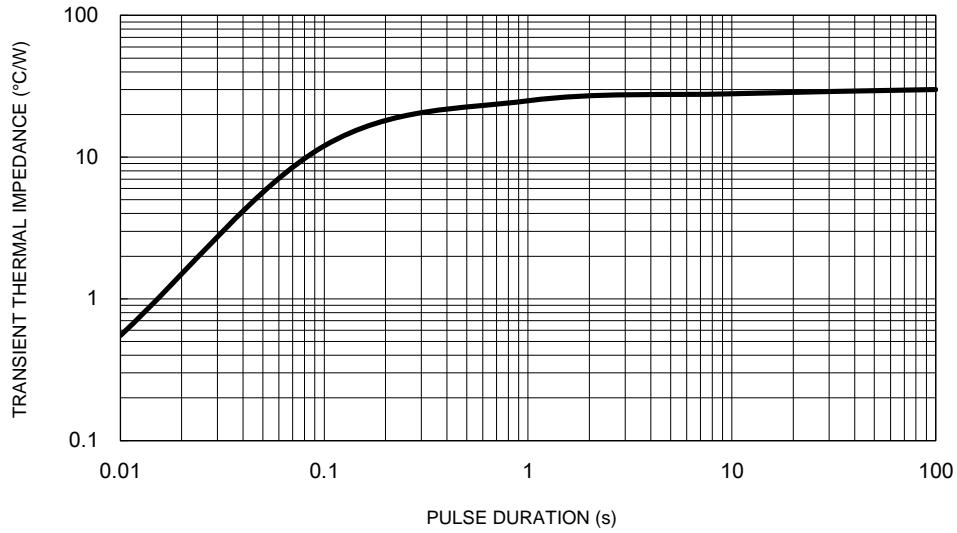
**Fig.5 Maximum Non-Repetitive Forward Surge Current**



**CHARACTERISTICS CURVES**

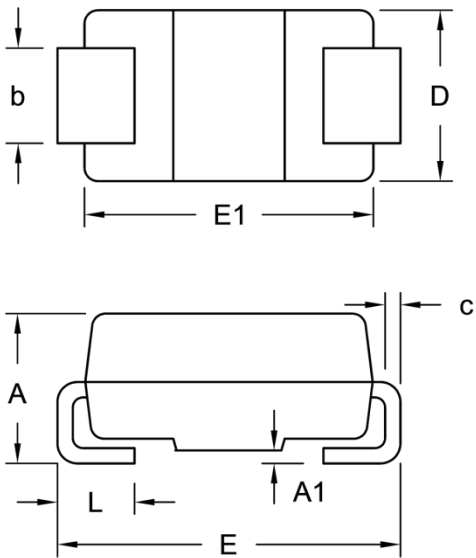
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig.6 Typical Transient Thermal Characteristics**



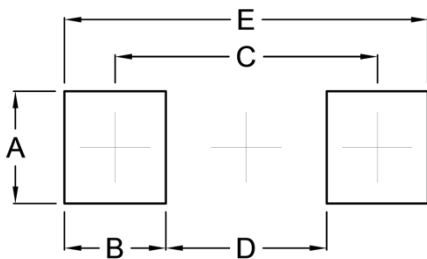
**PACKAGE OUTLINE DIMENSIONS**

DO-214AC (SMA)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.99	2.50	0.078	0.098
A1	0.10	0.20	0.004	0.008
b	1.27	1.58	0.050	0.062
c	0.15	0.31	0.006	0.012
D	2.29	2.83	0.090	0.111
E	4.95	5.33	0.195	0.210
E1	4.06	4.60	0.160	0.181
L	0.90	1.41	0.035	0.056

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.93	0.155
D	2.41	0.095
E	5.45	0.215

**MARKING DIAGRAM**



- P/N = Marking Code
- G = Green Compound
- YW = Date Code
- F = Factory Code

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