

## 1A, 50V - 600V Ultra Fast Surface Mount Rectifier

### FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Ultra Fast recovery time for high efficiency
- Low forward voltage, low power loss
- 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
- Lighting application
- Converter

### MECHANICAL DATA

- Case: DO-214AA (SMB)
- 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: 0.090g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	1	A
$V_{RRM}$	50 - 600	V
$I_{FSM}$	40, 35	A
$T_{J\ MAX}$	175	°C
Package	DO-214AA (SMB)	
Configuration	Single die	



DO-214AA (SMB)



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	MUR 105S	MUR 110S	MUR 115S	MUR 120S	MUR 140S	MUR 160S	UNIT
Marking code on the device		MUR 105S	MUR 110S	MUR 115S	MUR 120S	MUR 140S	MUR 160S	
Repetitive peak reverse voltage	$V_{RRM}$	50	100	150	200	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	105	140	280	420	V
Forward current	$I_F$	1						A
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	40				35		A
Junction temperature	$T_J$	- 55 to +175						°C
Storage temperature	$T_{STG}$	- 55 to +175						°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	17	°C/W

<b>ELECTRICAL SPECIFICATIONS</b> (TA = 25°C unless otherwise noted)						
<b>PARAMETER</b>		<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage <sup>(1)</sup>	MUR105S MUR110S MUR115S MUR120S	$I_F = 1A, T_J = 25^\circ C$	$V_F$	-	0.875	V
	MUR140S MUR160S			-	1.250	V
	MUR105S MUR110S MUR115S MUR120S	$I_F = 1A, T_J = 150^\circ C$		-	0.710	V
	MUR140S MUR160S			-	1.050	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	MUR105S MUR110S MUR115S MUR120S	$T_J = 25^\circ C$	$I_R$	-	2	μA
	MUR140S MUR160S			-	5	μA
	MUR105S MUR110S MUR115S MUR120S	$T_J = 150^\circ C$		-	50	μA
	MUR140S MUR160S			-	150	μA
Reverse recovery time	MUR105S MUR110S MUR115S MUR120S	$I_F = 0.5A, I_R = 1.0A$ $I_{rr} = 0.25A$	$t_{rr}$	-	25	ns
	MUR140S MUR160S			-	50	ns

**Notes:**

Pulse test with PW = 0.3ms

Pulse test with PW = 30ms

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
MUR1xS	DO-214AA (SMB)	3,000 / Tape & Reel

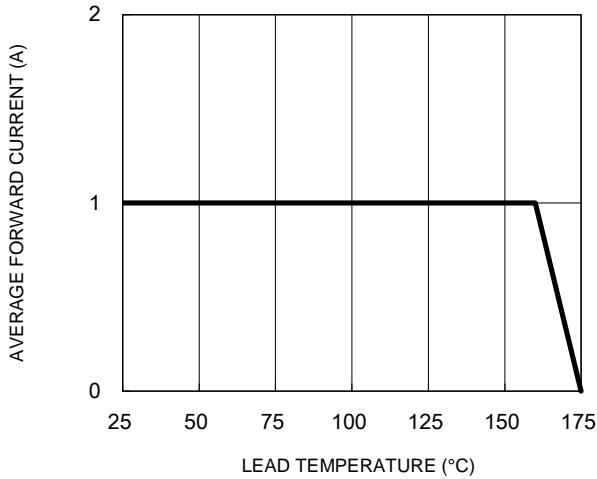
**Notes:**

"x" defines voltage from 50V(MUR105S) to 600V(MUR160S)

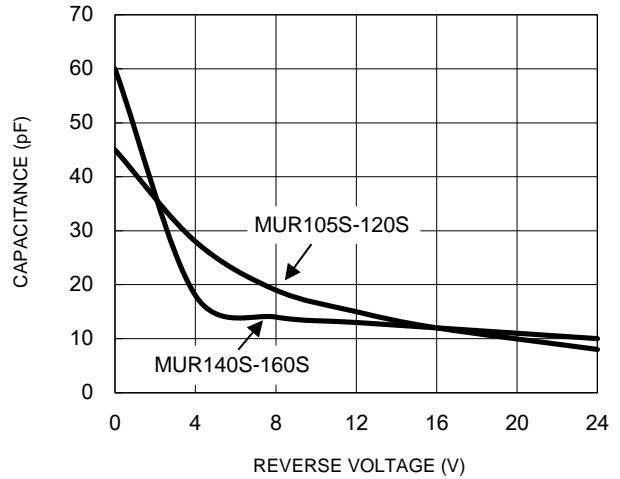
**CHARACTERISTICS CURVES**

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

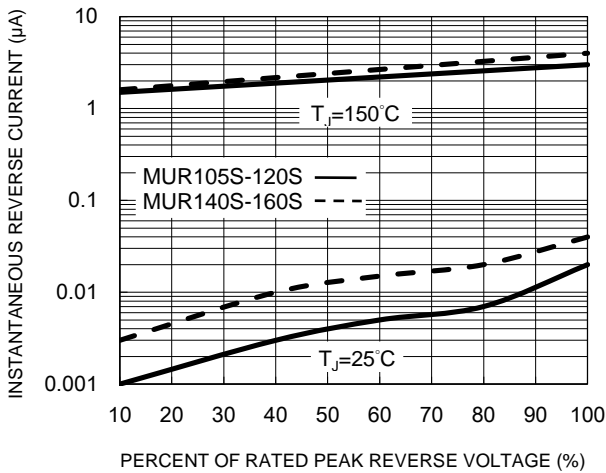
**Fig.1 Forward Current Derating Curve**



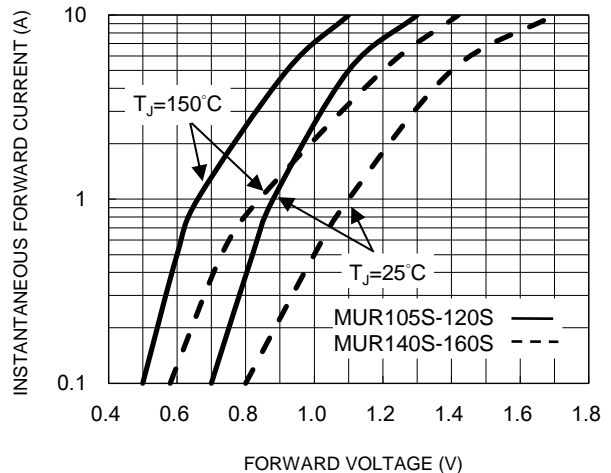
**Fig.2 Typical Junction Capacitance**



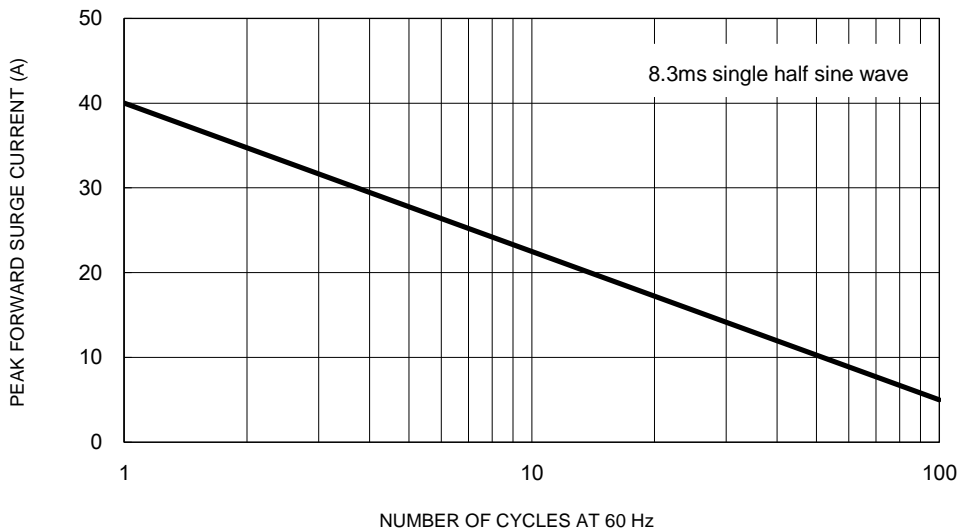
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**

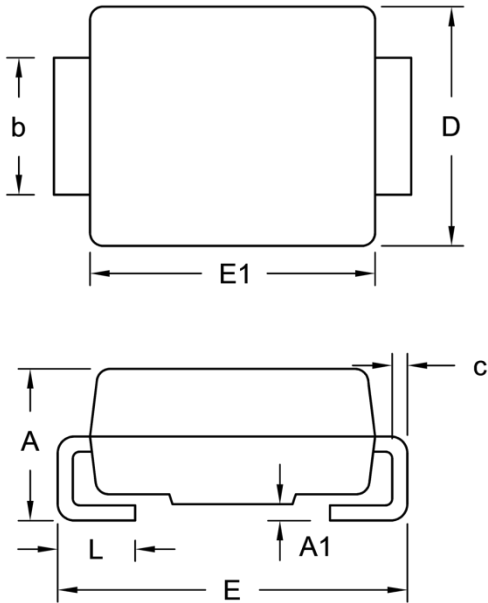


**Fig.5 Maximum Non-Repetitive Forward Surge Current**



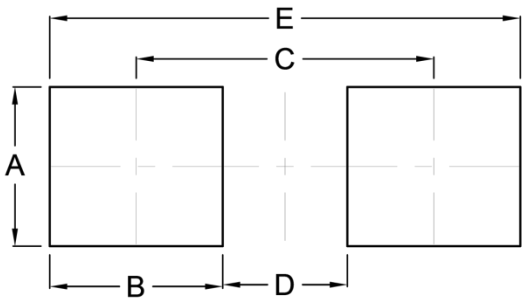
**PACKAGE OUTLINE DIMENSIONS**

DO-214AA (SMB)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.95	2.65	0.077	0.104
A1	0.05	0.20	0.002	0.008
b	1.95	2.20	0.077	0.087
c	0.15	0.31	0.006	0.012
D	3.30	3.95	0.130	0.156
E	5.10	5.60	0.201	0.220
E1	4.05	4.60	0.159	0.181
L	0.75	1.60	0.030	0.063

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	2.30	0.091
B	2.50	0.098
C	4.30	0.169
D	1.80	0.071
E	6.80	0.268

**MARKING DIAGRAM**



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

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