

## 1A, 50V - 600V Surface Mount Ultrafast Power Rectifier

### FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Ultrafast recovery time for high efficiency
- Low forward voltage, low power loss
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- 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
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Part no. with suffix "H" means AEC-Q101 qualified
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.09 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	1	A
$V_{RRM}$	50 - 600	V
$T_{JMAX}$	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
Maximum DC blocking voltage	$V_{DC}$	50	100	150	200	400	600	V
Forward current	$I_{F(AV)}$	1						A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	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>LIMIT</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	17	$^{\circ}C/W$

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

**Notes:**

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

<b>ORDERING INFORMATION</b>					
<b>PART NO.</b>	<b>PART NO. SUFFIX</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX(*)</b>	<b>PACKAGE</b>	<b>PACKING</b>
MUR1xxS (Note 1)	H	R5	G	SMB	850 / 7" Plastic reel
		R4		SMB	3,000 / 13" Paper reel
		M4		SMB	3,000 / 13" Plastic reel

**Note:**

1. "x" defines voltage from 50V (MUR105S) to 1000V (MUR160S)

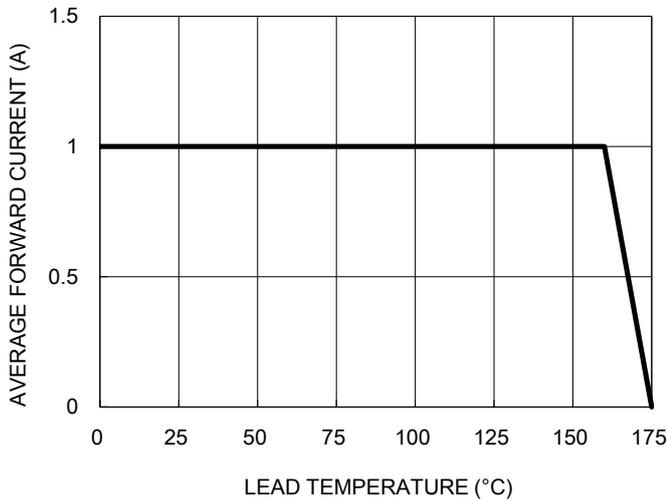
\*: Optional available

<b>EXAMPLE P/N</b>					
<b>EXAMPLE P/N</b>	<b>PART NO.</b>	<b>PART NO. SUFFIX</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>DESCRIPTION</b>
MUR160SHR5G	MUR160S	H	R5	G	AEC-Q101 qualified Green compound

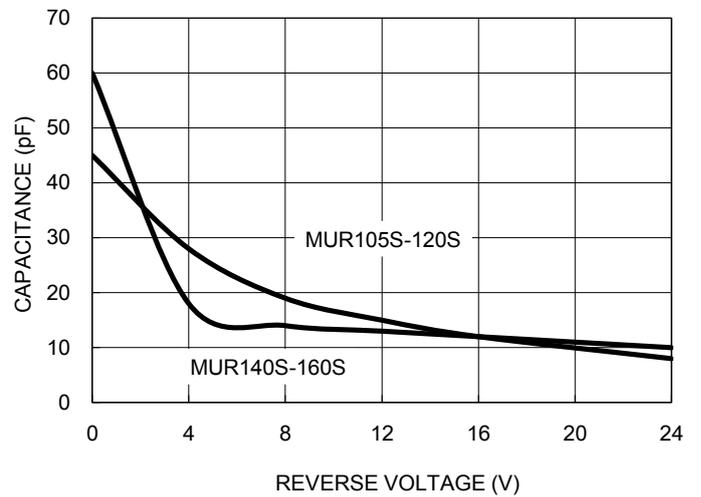
**CHARACTERISTICS CURVES**

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

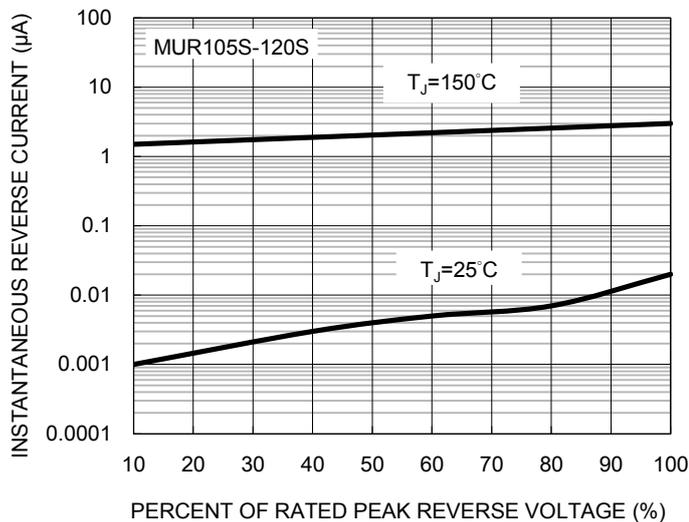
**Fig1. Forward Current Derating Curve**



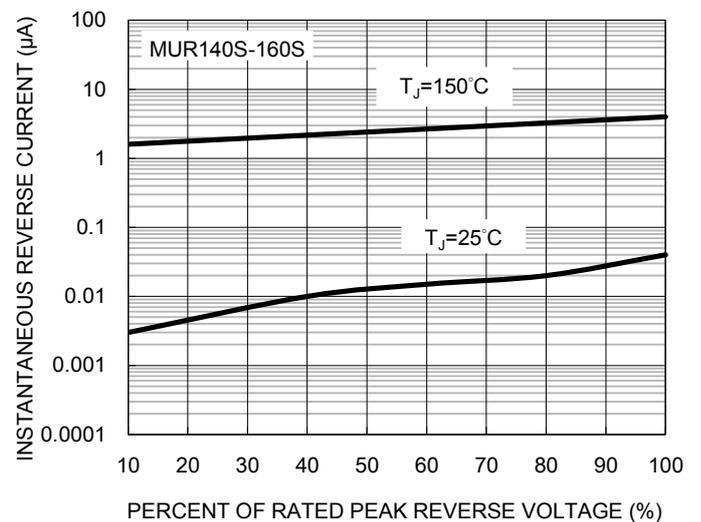
**Fig2. Typical Junction Capacitance**



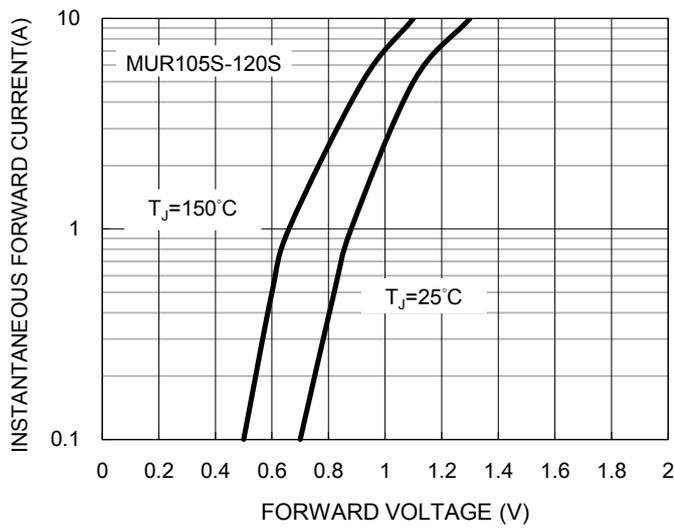
**Fig3. Typical Reverse Characteristics**



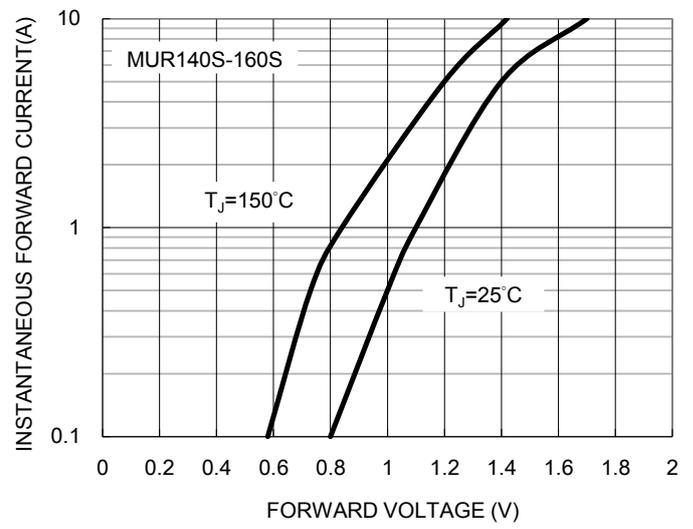
**Fig4. Typical Reverse Characteristics**



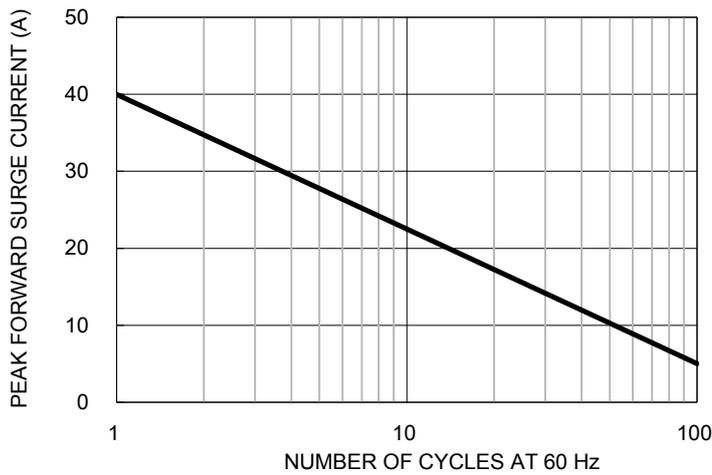
**Fig5. Typical Forward Characteristics**



**Fig6. Typical Forward Characteristics**

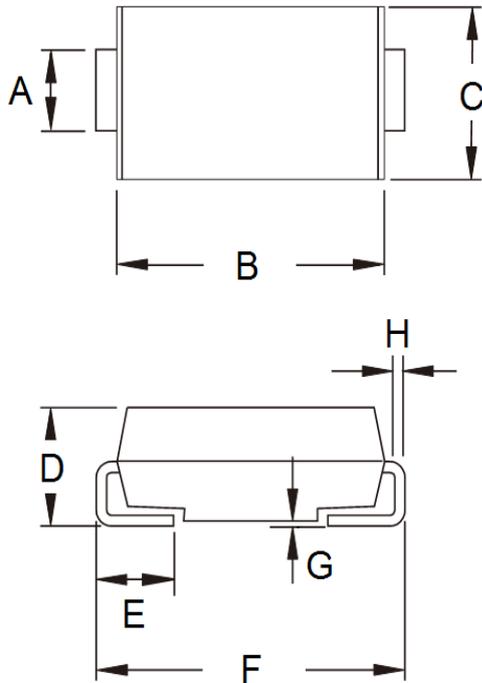


**Fig5. Maximum Non-repetitive Forward Surge Current**



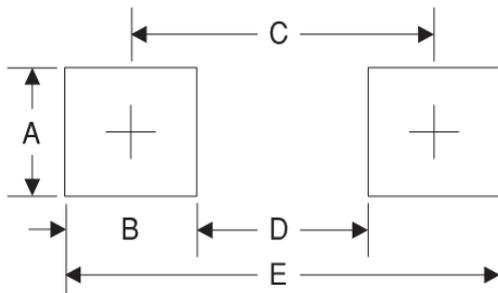
**PACKAGE OUTLINE DIMENSIONS**

DO-214AA (SMB)



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

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	2.3	0.091
B	2.5	0.098
C	4.3	0.169
D	1.8	0.071
E	6.8	0.268

**MARKING DIAGRAM**



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

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