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

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
$I_{F(AV)}$	1	A
V_{RRM}	50 - 600	V
$T_{J\ MAX}$	175	°C
Package	DO-214AA (SMB)	
Configuration	Single Die	

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- Converter

Pb-Free RoHS COMPLIANT

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)

DO-214AA (SMB)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°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

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**LIMIT**	**UNIT**
Junction-to-lead thermal resistance	$R_{\Theta JL}$	17	°C/W

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode (1)	MUR105S	I_F = 1A,T_J = 25°C	V_F	-	0.875	V
	MUR110S					V
	MUR115S					V
	MUR120S					V
	MUR140S			-	1.250	V
	MUR160S					V
Forward voltage per diode (1)	MUR105S	I_F = 1A,T_J = 150°C	V_F	-	0.710	V
	MUR110S					V
	MUR115S					V
	MUR120S					V
	MUR140S			-	1.050	V
	MUR160S					V
Reverse current @ rated V_R per diode (2)	MUR105S	T_J = 25°C	I_R	-	2	μA
	MUR110S					μA
	MUR115S					μA
	MUR120S					μA
	MUR140S			-	5	μA
	MUR160S					μA
Reverse current @ rated V_R per diode (2)	MUR105S	T_J = 150°C	I_R	-	50	μA
	MUR110S					μA
	MUR115S					μA
	MUR120S					μA
	MUR140S			-	150	μA
	MUR160S					μA
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					ns
	MUR140S			-	50	ns
	MUR160S					ns

Notes:

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

ORDERING INFORMATION

PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX(*)	PACKAGE	PACKING
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

EXAMPLE P/N

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

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig1. Forward Current Derating Curve

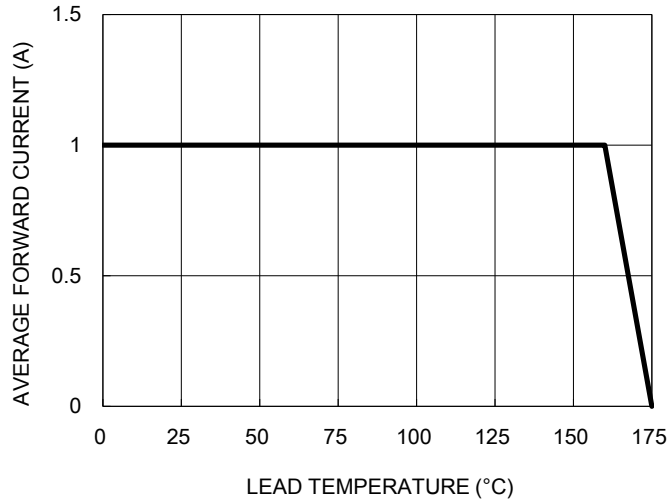


Fig2. Typical Junction Capacitance

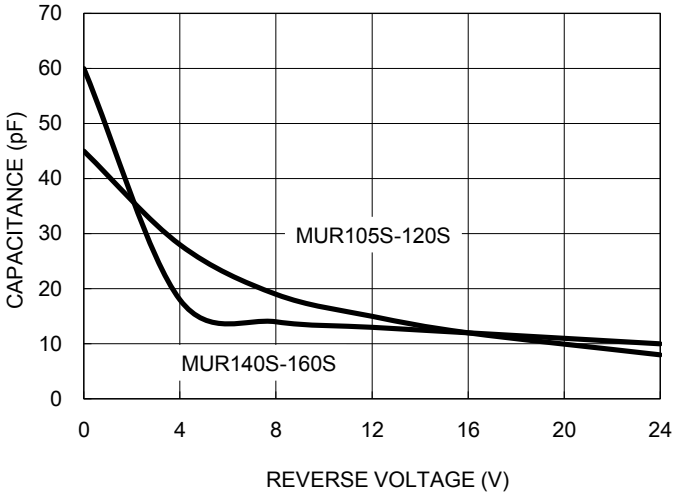


Fig3. Typical Reverse Characteristics

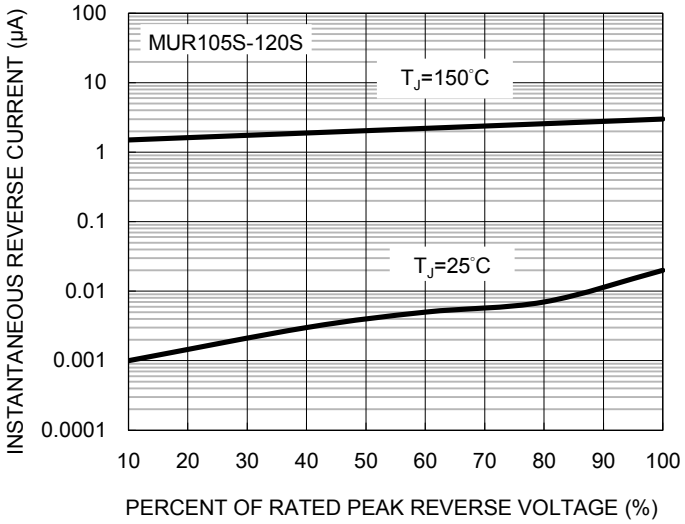


Fig4. Typical Reverse Characteristics

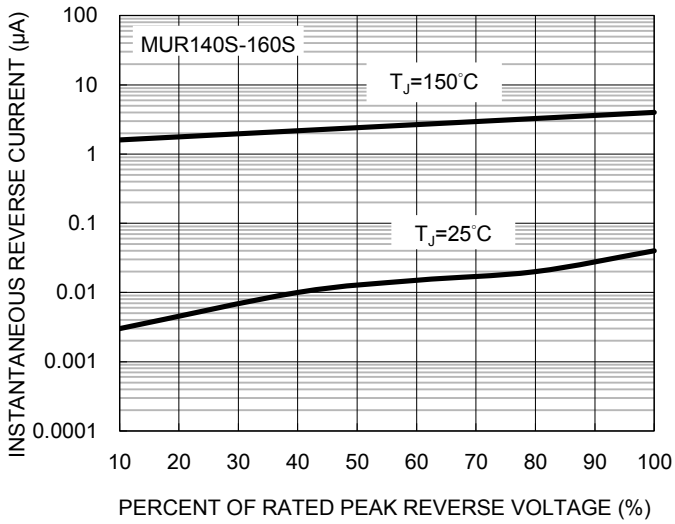


Fig5. Typical Forward Characteristics

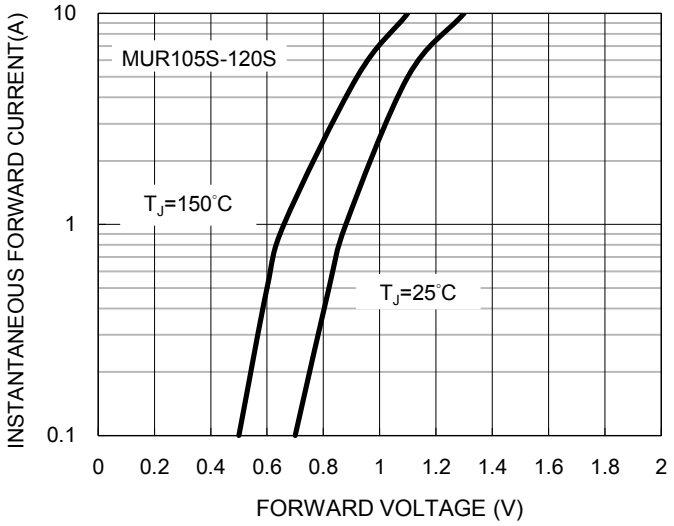


Fig6. Typical Forward Characteristics

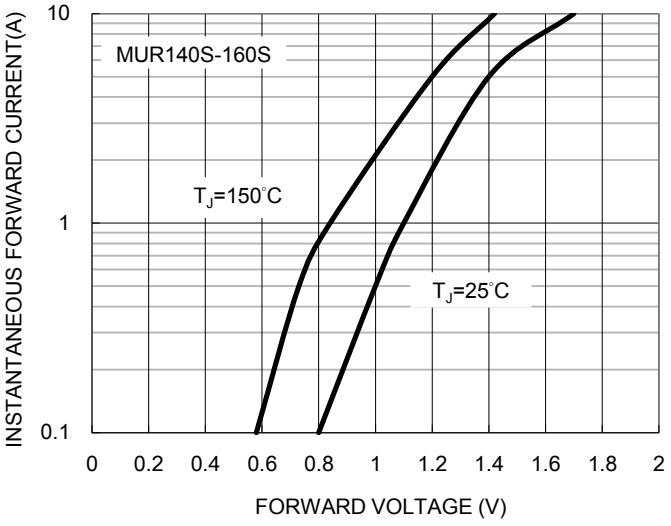
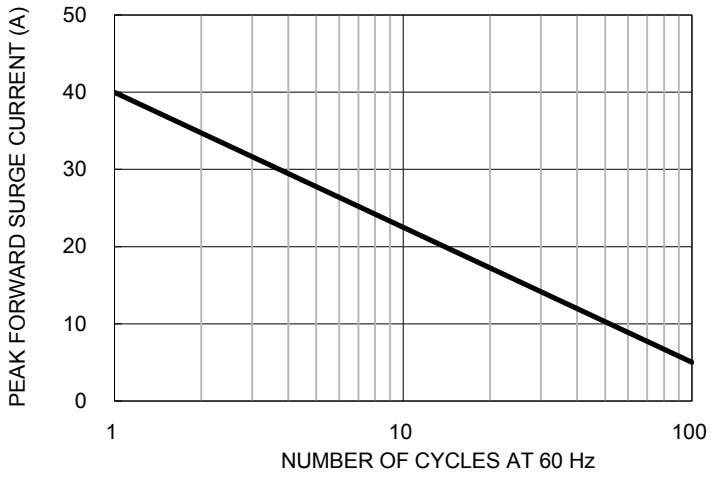
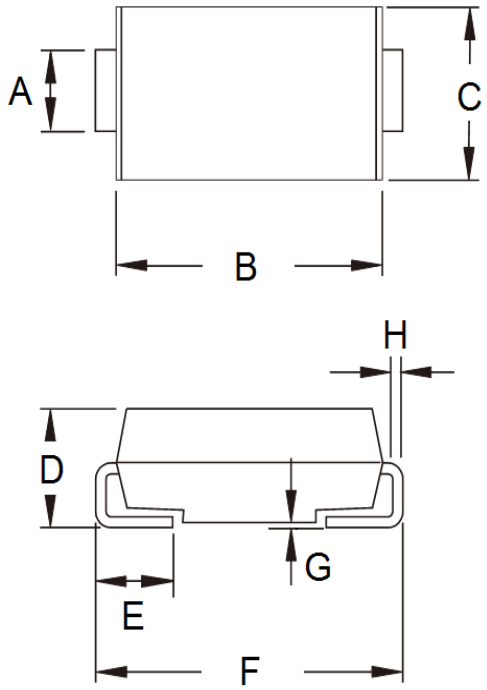


Fig5. Maximum Non-repetitive Forward Surge Current



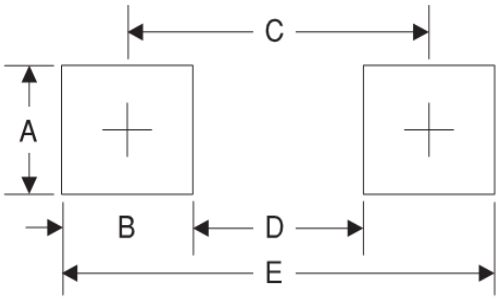
PACKAGE OUTLINE DIMENSIONS

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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