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3A, 50V - 600V Surface Mount Ultrafast Power Rectifier

FEATURES

- Glass passivated junction
- Ideal for automated placement
- Built-in strain relief
- Ultrafast recovery time for high efficiency
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer, automotive and telecommunication.

MECHANICAL DATA

- Case: DO-214AB (SMC)
- Molding compound meets UL 94V-0 flammability rating
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- Moisture sensitivity level: level 1, per J-STD-020
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.21 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	3	A
V_{RRM}	50 - 600	V
I_{FSM}	75	A
$T_{J\ MAX}$	175	°C
Package	DO-214AB (SMC)	
Configuration	Single die	


DO-214AB (SMC)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	MUR 305S	MUR 310S	MUR 315S	MUR 320S	MUR 340S	MUR 360S	UNIT
Marking code on the device		MUR 305S	MUR 310S	MUR 315S	MUR 320S	MUR 340S	MUR 360S	
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	$I_{F(AV)}$	3						A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	75						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 per diode	$R_{\theta JL}$	11	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Forward voltage per diode ⁽¹⁾	MUR305S MUR310S MUR315S MUR320S	$I_F = 3\text{A}, T_J = 25^\circ\text{C}$	V_F	-	0.875	V
	MUR340S MUR360S			-	1.250	V
	MUR305S MUR310S MUR315S MUR320S	$I_F = 3\text{A}, T_J = 150^\circ\text{C}$	V_F	-	0.710	V
	MUR340S MUR360S			-	1.050	V
Reverse current @ rated V_R per diode ⁽²⁾	MUR305S MUR310S MUR315S MUR320S	$T_J = 25^\circ\text{C}$	I_R	-	5	μA
	MUR340S MUR360S			-	10	μA
	MUR305S MUR310S MUR315S MUR320S	$T_J = 150^\circ\text{C}$	I_R	-	150	μA
	MUR340S MUR360S			-	250	μA
Reverse recovery time	MUR305S MUR310S MUR315S MUR320S	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{RR} = 0.25\text{A}$	t_{rr}	-	25	ns
	MUR340S MUR360S			-	50	ns

Notes:

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

ORDERING INFORMATION					
PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
MUR3xxS (Note 1)	H	R7	G	SMC	850 / 7" Plastic reel
		R6		SMC	3,000 / 13" Paper reel
		M6		SMC	3,000 / 13" Plastic reel
		V7		Matrix SMC	850 / 7" Plastic reel
		V6		Matrix SMC	3,000 / 13" Plastic reel

Note :

- "xx" defines voltage from 50V (MUR305S) to 600V (MUR340S)

EXAMPLE					
EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
MUR305SHR7G	MUR305S	H	R7	G	AEC-Q101 qualified Green compound

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

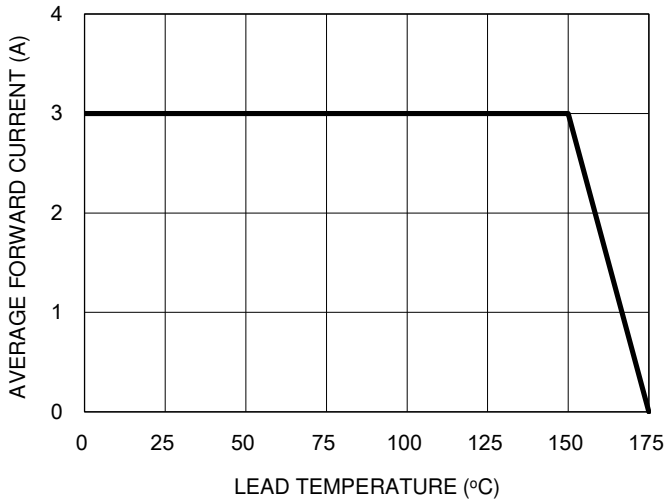


Fig.2 Typical Junction Capacitance

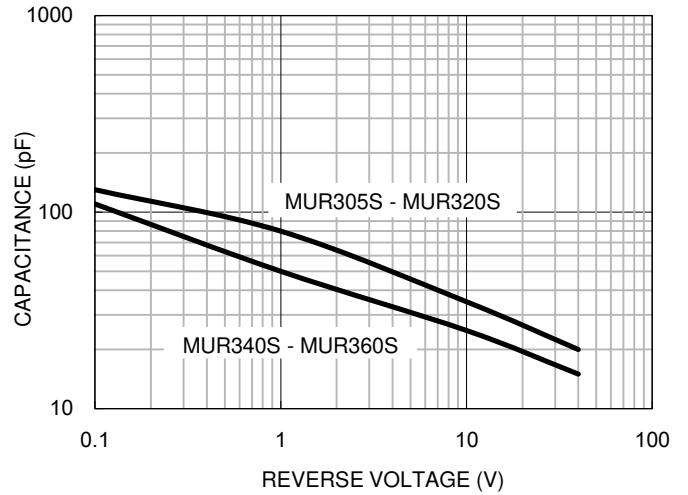


Fig.3 Typical Reverse Characteristics

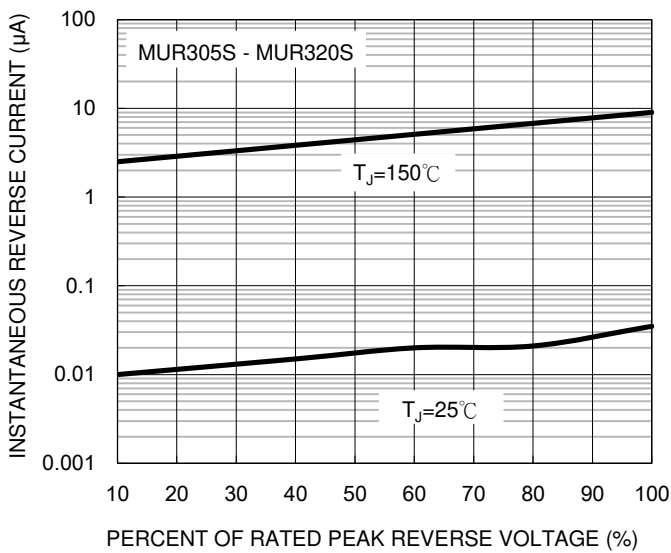
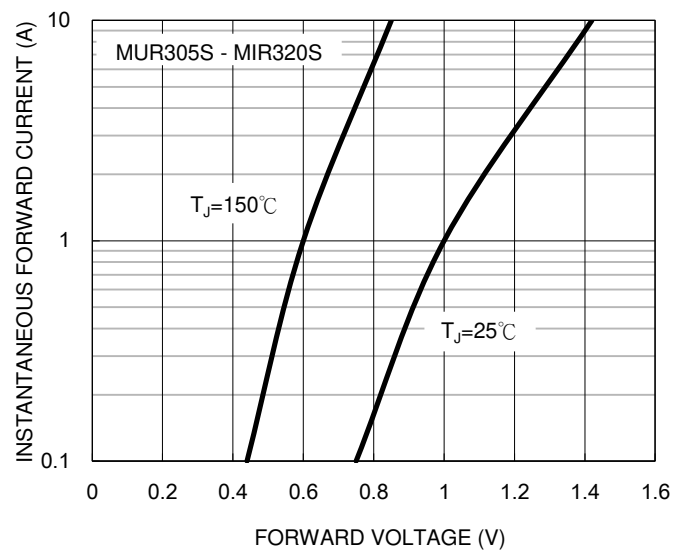


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.5 Typical Reverse Characteristics

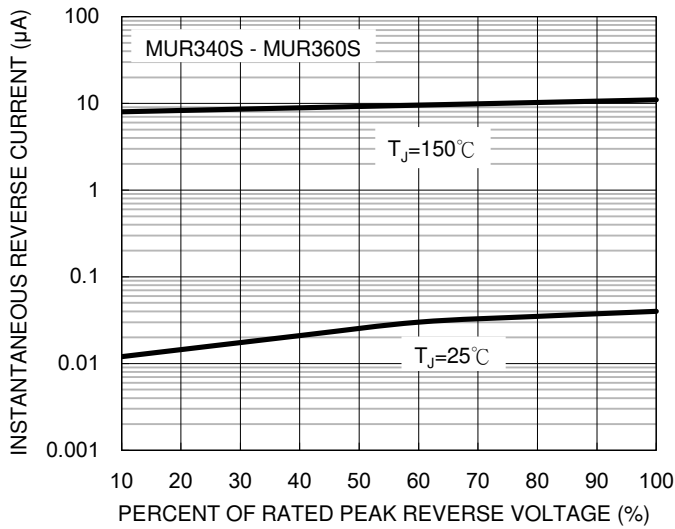


Fig.6 Typical Forward Characteristics

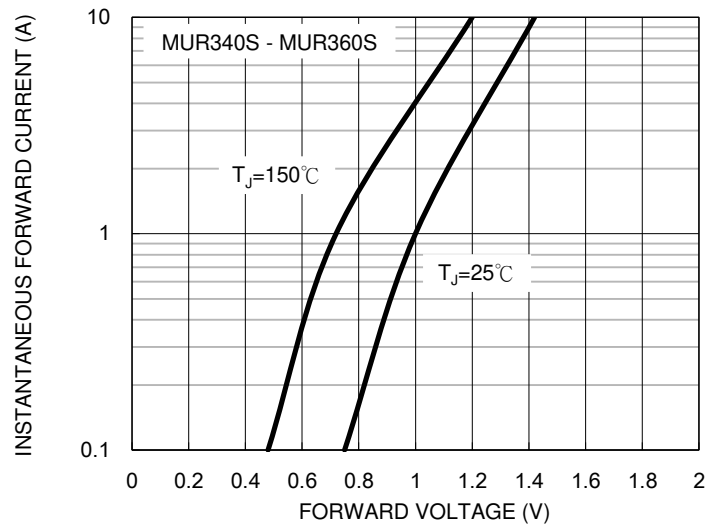
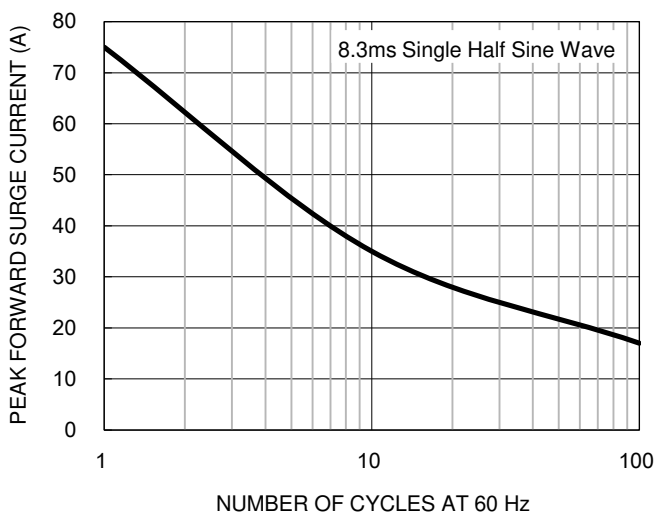
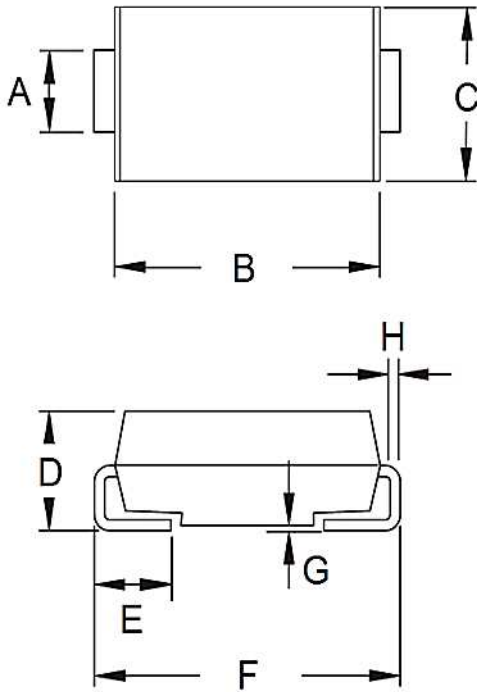


Fig.7 Maximum Non-repetitive Forward Surge Current



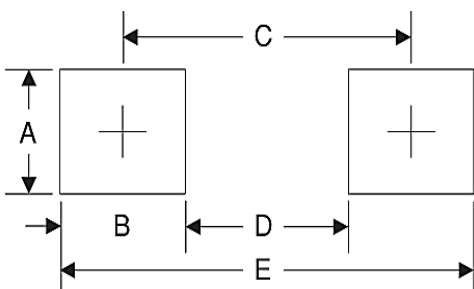
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.90	3.20	0.114	0.126
B	6.60	7.11	0.260	0.280
C	5.59	6.22	0.220	0.245
D	2.00	2.62	0.079	0.103
E	1.00	1.60	0.039	0.063
F	7.75	8.13	0.305	0.320
G	0.10	0.20	0.004	0.008
H	0.15	0.31	0.006	0.012

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.80	0.268
D	4.40	0.173
E	9.40	0.370

MARKING DIAGRAM



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

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