

4A, 200V - 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: 0.25 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	4	A
V_{RRM}	200 - 600	V
I_{FSM}	75	A
T_{JMAX}	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	MUR420S	MUR440S	MUR460S	UNIT
Marking code on the device		MUR420S	MUR440S	MUR460S	
Repetitive peak reverse voltage	V_{RRM}	200	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	V
Maximum DC blocking voltage	V_{DC}	200	400	600	V
Forward current	$I_{F(AV)}$	4			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	TYP	UNIT
Junction-to-ambient thermal resistance per diode	$R_{\theta JA}$	45	$^{\circ}\text{C}/\text{W}$
Junction-to-case thermal resistance per diode	$R_{\theta JC}$	8.5	$^{\circ}\text{C}/\text{W}$

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

PARAMETER	CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Forward voltage per diode ⁽¹⁾	MUR420S	$I_F = 4\text{A}, T_J = 25^{\circ}\text{C}$	V_F	-	0.875	V
	MUR440S MUR460S			-	1.250	V
	MUR420S	$I_F = 4\text{A}, T_J = 150^{\circ}\text{C}$	V_F	-	0.710	V
	MUR440S MUR460S			-	1.050	V
Reverse current @ rated V_R per diode ⁽²⁾	MUR420S	$T_J = 25^{\circ}\text{C}$	I_R	-	5	μA
	MUR440S MUR460S			-	10	μA
	MUR420S	$T_J = 150^{\circ}\text{C}$	I_R	-	150	μA
	MUR440S MUR460S			-	250	μA
Junction capacitance	1 MHz, $V_R = 4.0\text{V}$	C_J	65	-	pF	
Reverse recovery time	MUR420S	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{RR} = 0.25\text{A}$	t_{rr}	-	25	ns
	MUR440S MUR460S			-	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
MUR4xxS (Note 1,2)	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 :

1. "xx" defines voltage from 50V (MUR42S) to 600V (MUR460S)
2. Only V6 and V7 are all green compound (halogen free)

EXAMPLE

EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
MUR420SHR7G	MUR420S	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

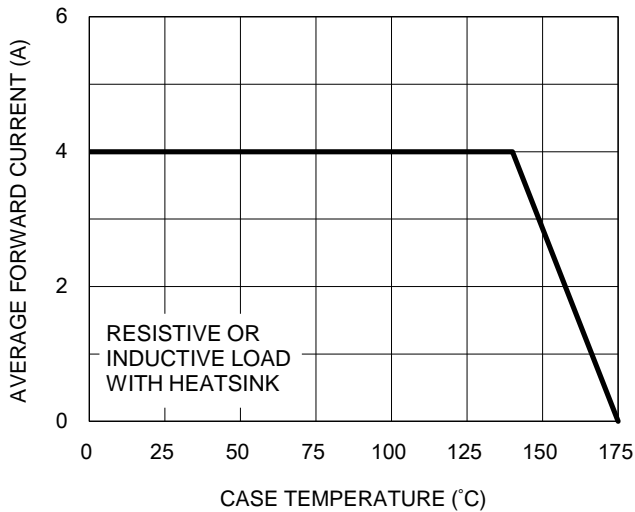


Fig.2 Typical Junction Capacitance

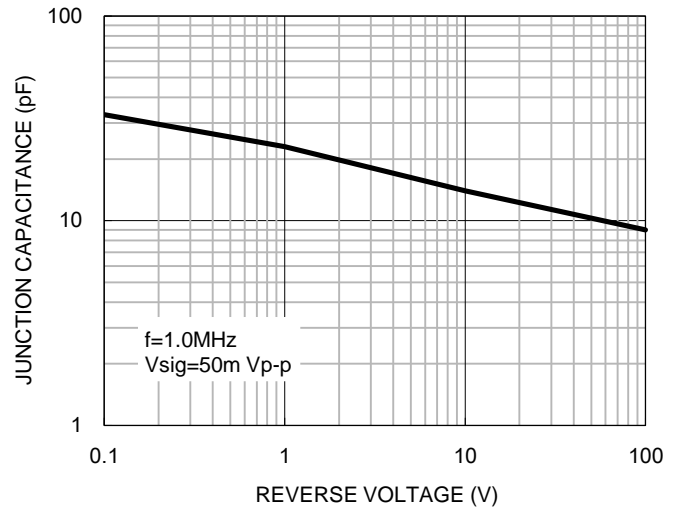


Fig.3 Typical Reverse Characteristics

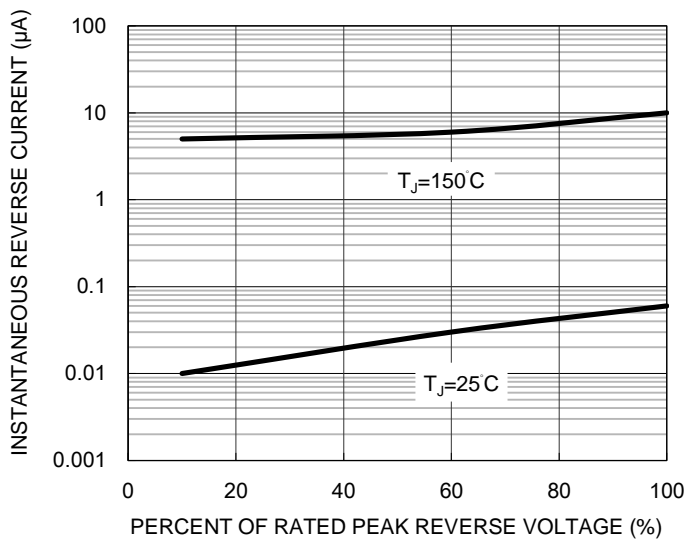
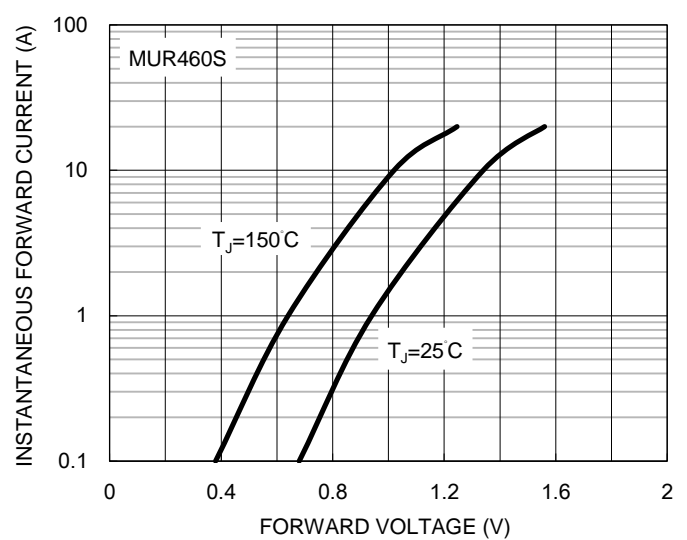


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.5 Maximum Non-repetitive Forward Surge Current

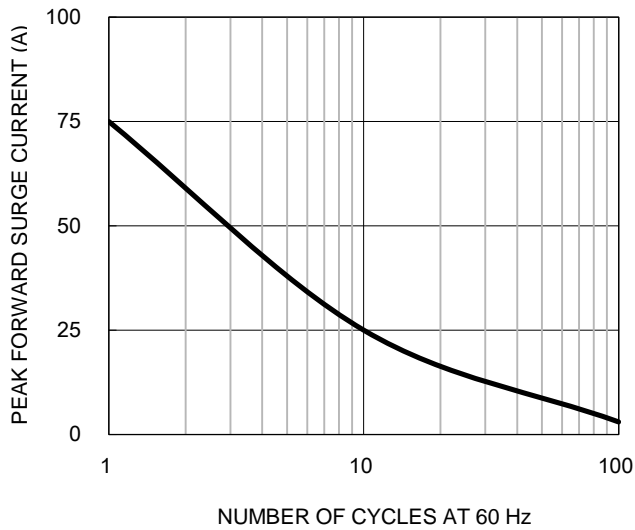
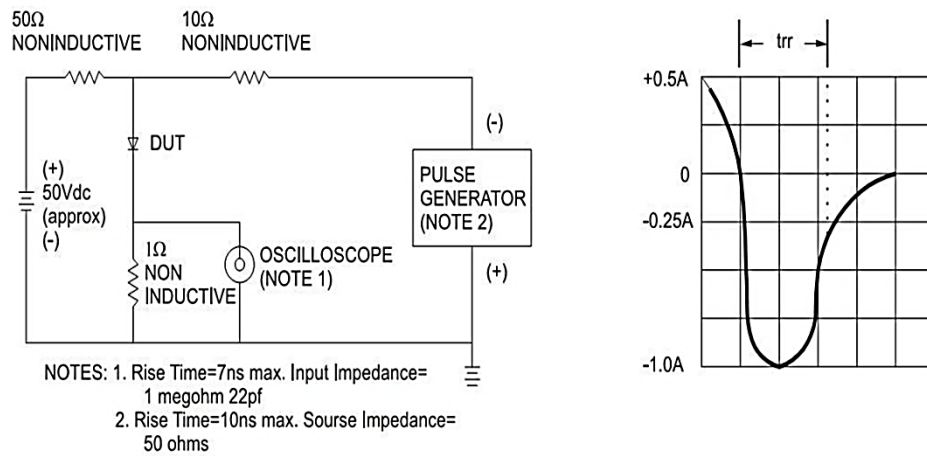


Fig.6 Reverse Recovery Time Characteristic And Test Circuit Diagram



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

Matrix SMC

SMC



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

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