

Surface-Mount Ultrafast Plastic Rectifier


SMC (DO-214AB)

Cathode  Anode

LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	4.0 A
V_{RRM}	600 V
I_{FSM}	110 A
t_{rr}	50 ns
V_F at $I_F = 4.0$ A ($T_A = 25$ °C)	1.28 V
T_J max.	175 °C
Package	SMC (DO-214AB)
Circuit configuration	Single

FEATURES

- Glass passivated pellet chip junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT
HALOGEN
FREE
Available

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, and telecommunication.

MECHANICAL DATA

Case: SMC (DO-214AB)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 and M3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	MURS460	UNIT
Device marking code		4MJ	
Maximum repetitive peak reverse voltage	V_{RRM}	600	V
Working peak reverse voltage	V_{RWM}	600	V
Maximum DC blocking voltage	V_{DC}	600	V
Maximum average forward rectified current	$I_{F(AV)}^{(1)}$	2.4	A
	$I_{F(AV)}^{(2)}$	4.0	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	110	A
Peak forward surge current 1 ms single half sine-wave superimposed on rated load	I_{FSM}	220	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	°C

Notes

(1) Free air, mounted on recommended copper pad area

(2) Mounted on 25 mm x 25 mm pad area



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	MURS460	UNIT
Maximum instantaneous forward voltage	I _F = 3.0 A	T _A = 25 °C	V _F ⁽¹⁾	1.25	V
	I _F = 4.0 A			1.28	
	I _F = 3.0 A	T _A = 150 °C		1.05	
Maximum instantaneous reverse current at rated DC blocking voltage	V _R = 600 V	T _A = 25 °C	I _R ⁽²⁾	10	μA
		T _A = 150 °C		250	
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	50	ns
	I _F = 1.0 A, dI/dt = 50 A/μs, V _R = 30 V, I _{rr} = 10 % I _{RM}			75	

Notes(1) Pulse test: $t_p = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$ (2) Pulse test: pulse width $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	MURS460	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)(2)}$	85	$^{\circ}\text{C}/\text{W}$
	$R_{\theta JM}^{(1)(2)(3)}$	12	

Notes(1) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$ (2) Free air, mounted on recommended copper pad area; thermal resistance $R_{\theta JA}$ – junction to ambient and $R_{\theta JM}$ – junction to mount

(3) Mounted on 25 mm x 25 mm pad area

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
MURS460-E3/H	0.211	H	850	7" diameter plastic tape and reel
MURS460-E3/I	0.211	I	3500	13" diameter plastic tape and reel
MURS460-M3/H	0.211	H	850	7" diameter plastic tape and reel
MURS460-M3/I	0.211	I	3500	13" diameter plastic tape and reel

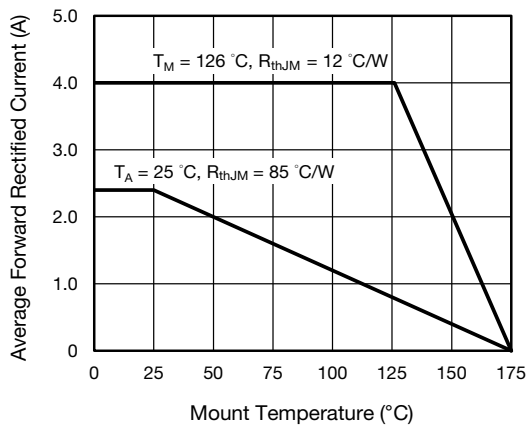
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

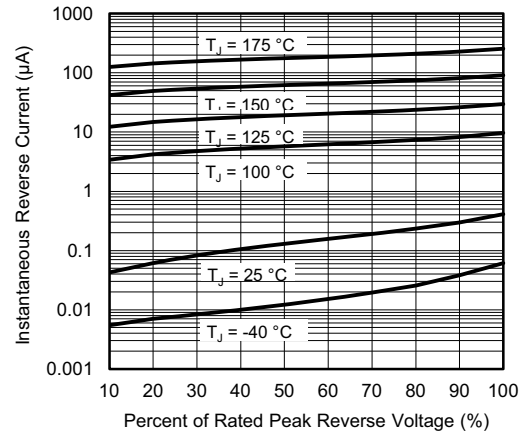


Fig. 4 - Typical Reverse Characteristics

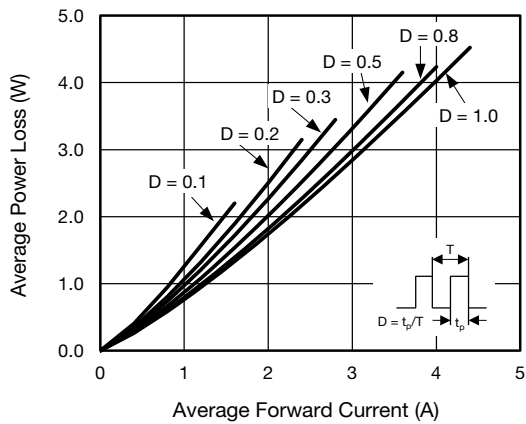


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

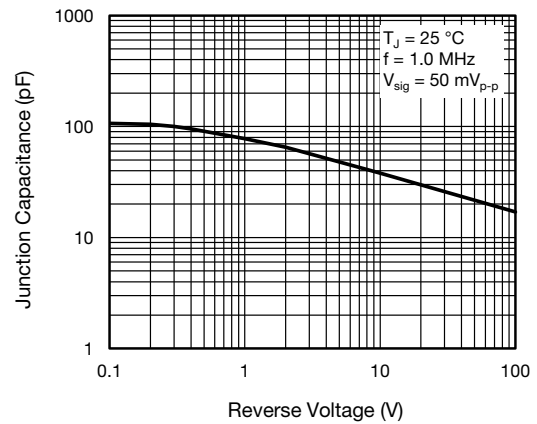


Fig. 5 - Typical Junction Capacitance

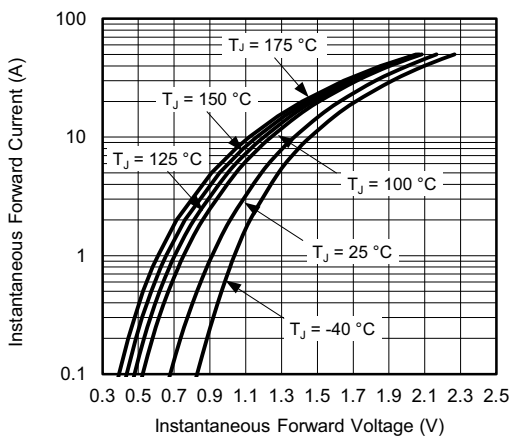


Fig. 3 - Typical Instantaneous Forward Characteristics

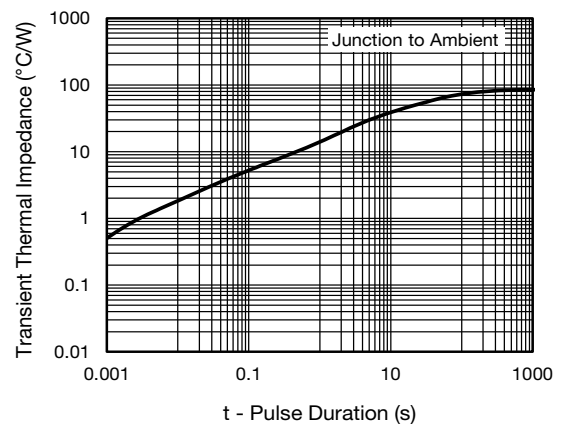


Fig. 6 - Transient Thermal Impedance

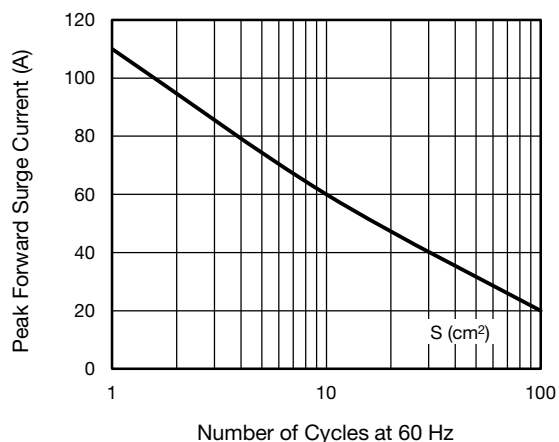
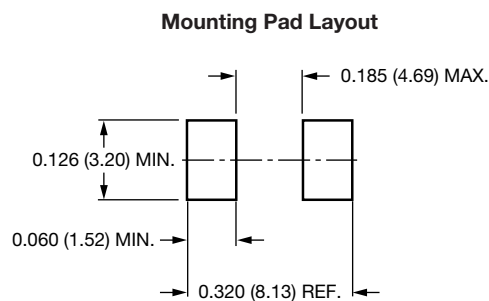
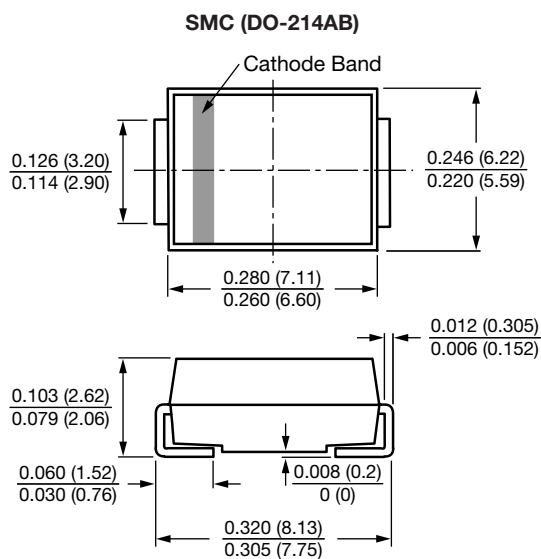


Fig. 7 - Peak Forward Surge Current

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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