

Ultra-fast Plastic Rectifiers Reverse Voltage 400V to 600V Forward Current 1A

MURS140 and MURS160

Features

- Glass passivated junction
- Plastic package has UL flammability classification 94V-0
- Ultra-fast recovery time for high efficiency
- Ideally suited for use in very high frequency switching power supplies, inverters, and as a free wheeling diode
- For surface mount applications
- High temperature soldering guaranteed: 250°C/10seconds on terminals

Outline

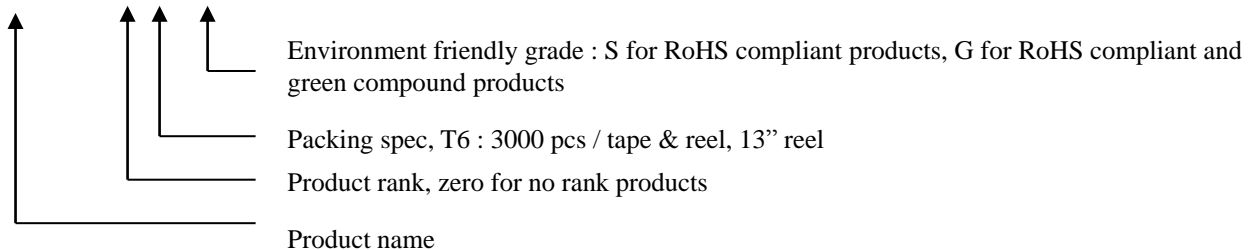


Mechanical Data

- Case : JEDEC DO-214AA(SMB) molded plastic body
- Terminals: Pure tin plated, solderable per MIL-STD-750 method 2026
- Polarity: Color band denotes cathode end.
- Weight: 0.003 oz., 0.093 gram

Ordering Information

Device	Package	Shipping
MURS140- 0-T6-G	SMB	3000 pcs / Tape & Reel
MURS160- 0-T6-G	(Pb-free lead plating and halogen-free package)	



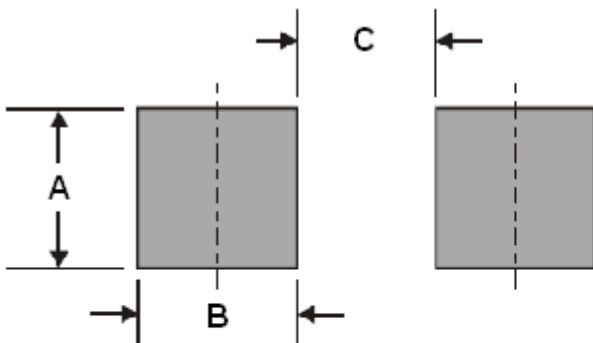
Maximum Ratings and Electrical Characteristics

(Rating at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbol	Type		Units
		MURS140	MURS160	
Maximum repetitive peak reverse voltage	VRRM	400	600	V
Peak reverse working voltage	VRWM	400	600	V
Maximum DC blocking voltage	VDC	400	600	V
Maximum instantaneous forward voltage (Note 1)	V _F	at 1A, T _J =25°C		V
		at 1A, T _J =150°C		
Maximum average forward rectified current (see Fig 1)	I _{F(AV)}	at T _L =150°C		A
		at T _L =125°C		
Peak forward surge current @8.3ms single half sine wave superimposed on rated load (JEDEC method)	I _{FSM}	35		A
Maximum instantaneous reverse current at rated DC blocking voltage (Note 1)	I _R	T _J =25°C		μA
		T _J =100°C		
Maximum reverse recovery time at I _F =0.5A, I _R =1A, I _{rr} =0.25A	t _{rr}	50		ns
Maximum reverse recovery time at I _F =1A, dI/dt=50A/μs, V _R =30V, I _{rr} =10%I _{RM}	t _{rr}	75		ns
Maximum forward recovery time at I _F =1A, dI/dt=100A/μs, recovery to 1V	t _{rr}	50		ns
Typical thermal resistance, junction to ambient	R _{θJA}	13		°C/W
Operating junction and storage temperature range	T _J ;T _{STG}	-55 ~ +175		°C

Note: 1.Pulse test: pulse width≤300μs, duty cycle≤2%

Recommended Footprint



Dimensions in inches and (millimeter)

DIM	Inches	Millimeters
	Typ	Typ
A	0.142	3.60
B	0.059	1.50
C	0.118	3.00

Characteristic Curves

Fig. 1 - Forward Current Derating Curve

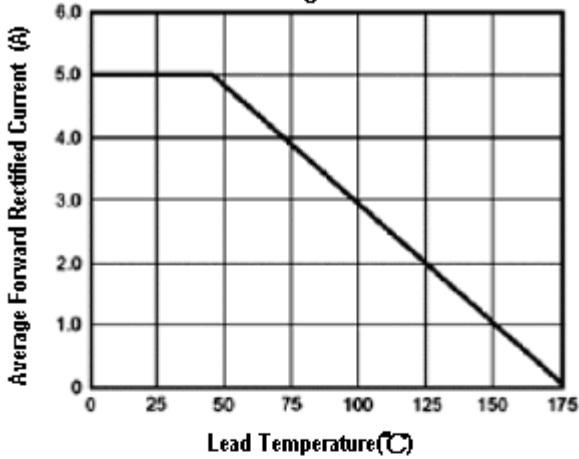


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

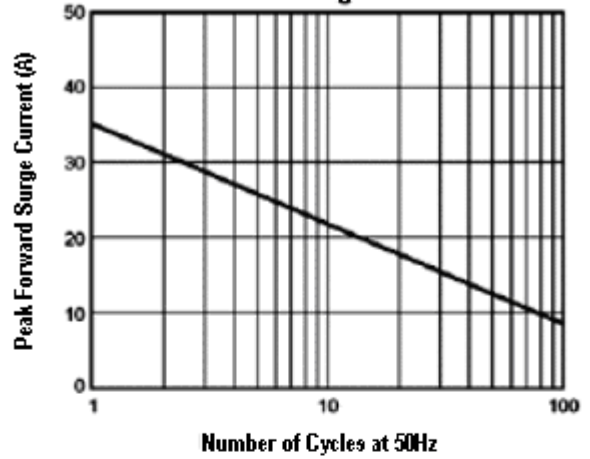


Fig. 3 - Typical Instantaneous Forward Characteristics (MURS160)

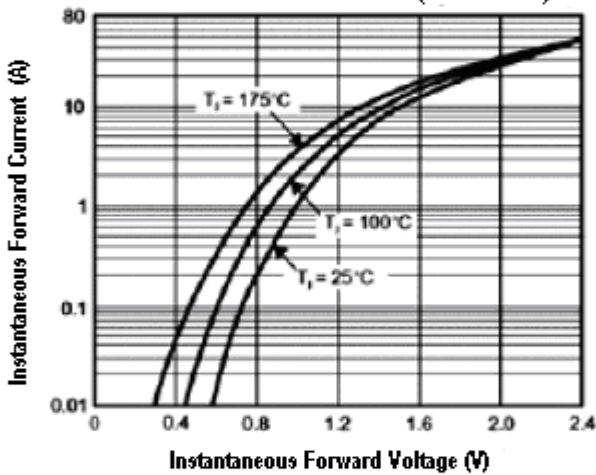


Fig. 4 - Typical Reverse Leakage Characteristics (MURS160)

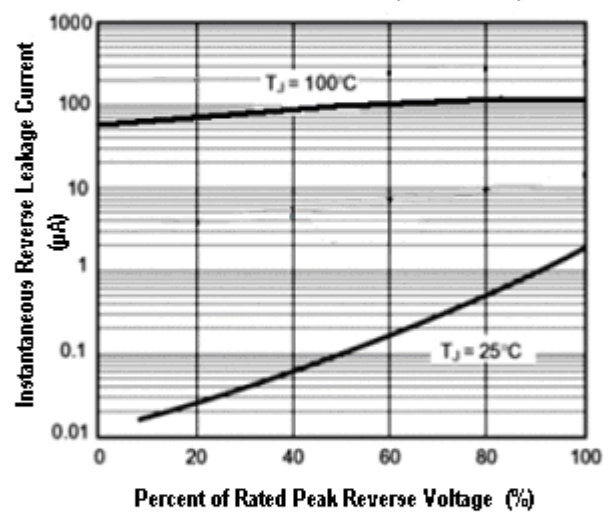
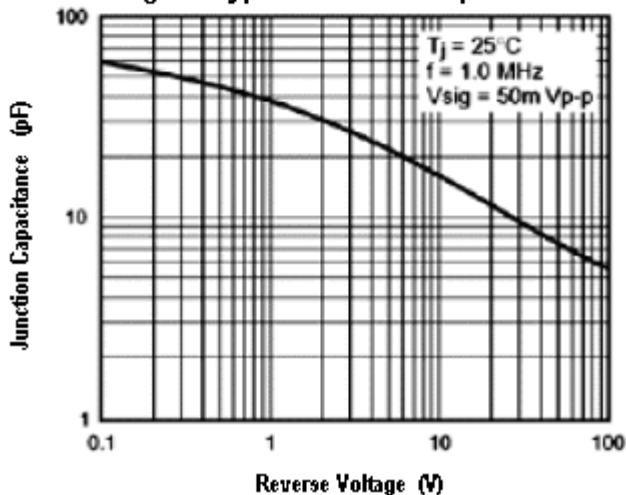
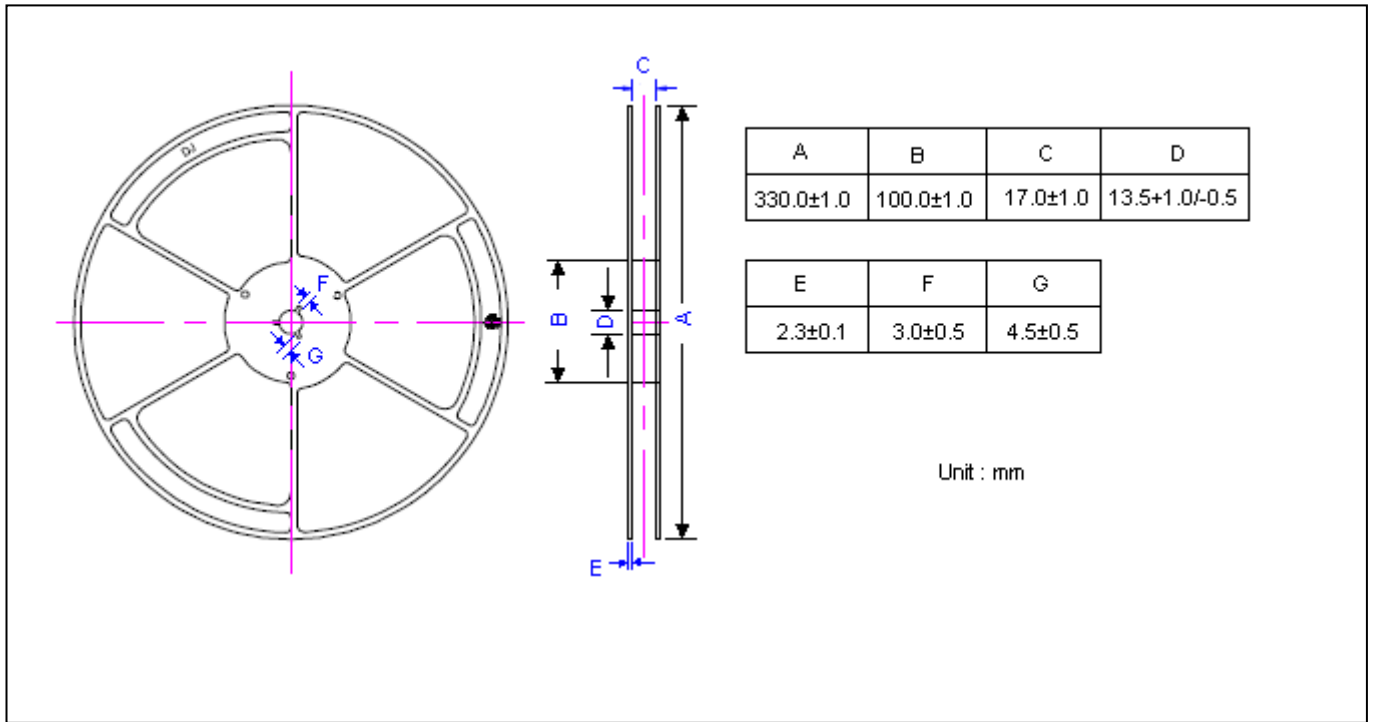


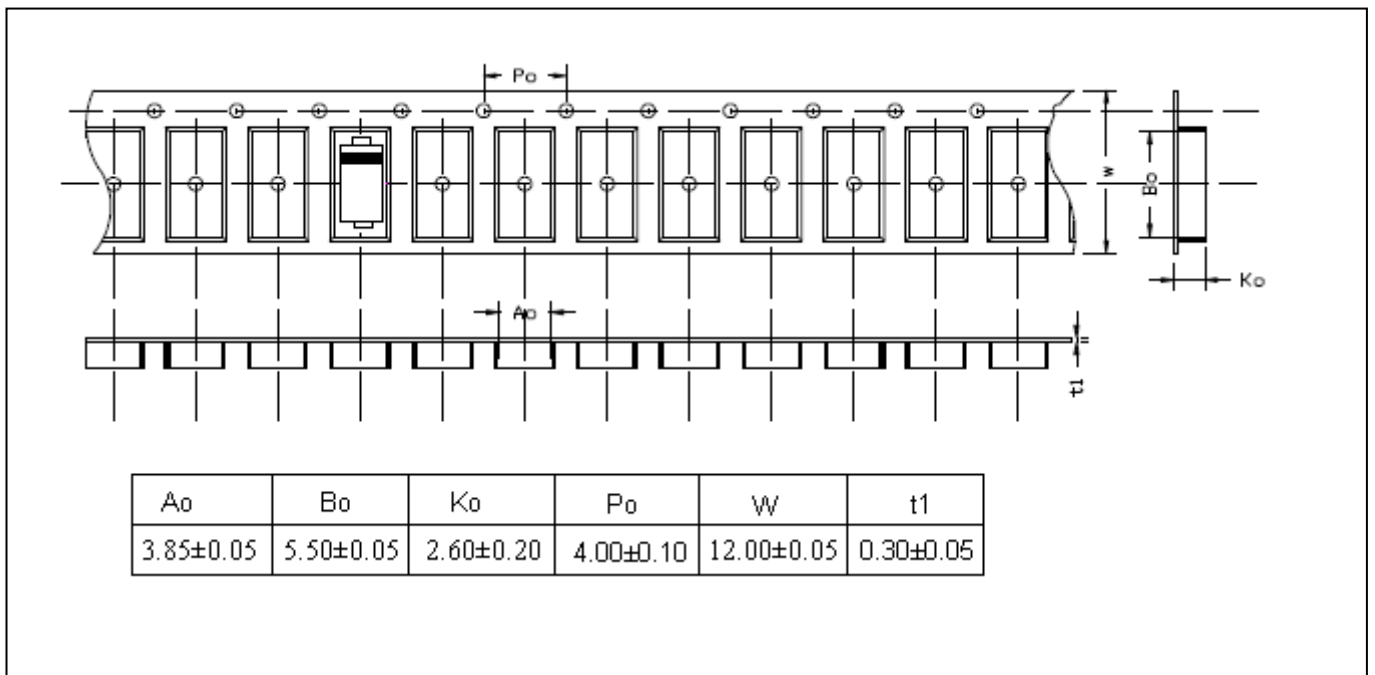
Fig. 5 - Typical Junction Capacitance



Reel Dimension

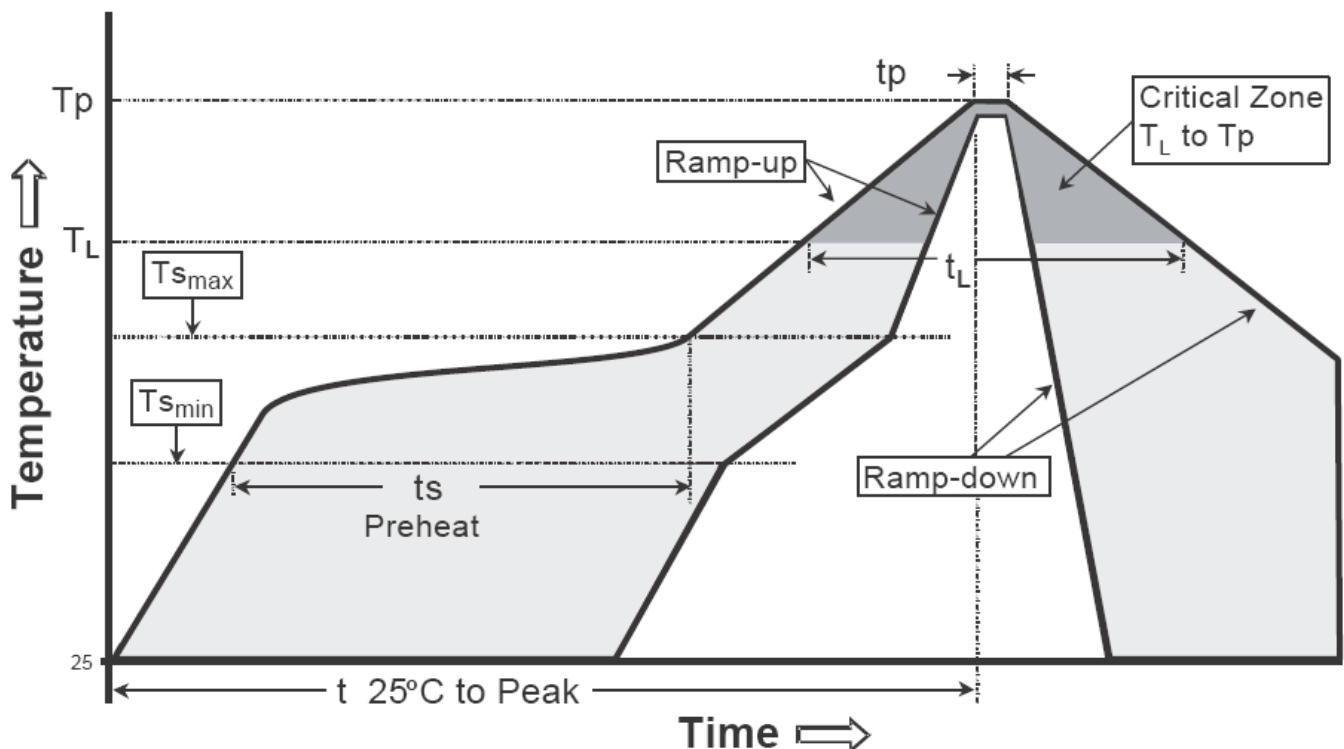


Carrier Tape Dimension



Recommended wave soldering condition

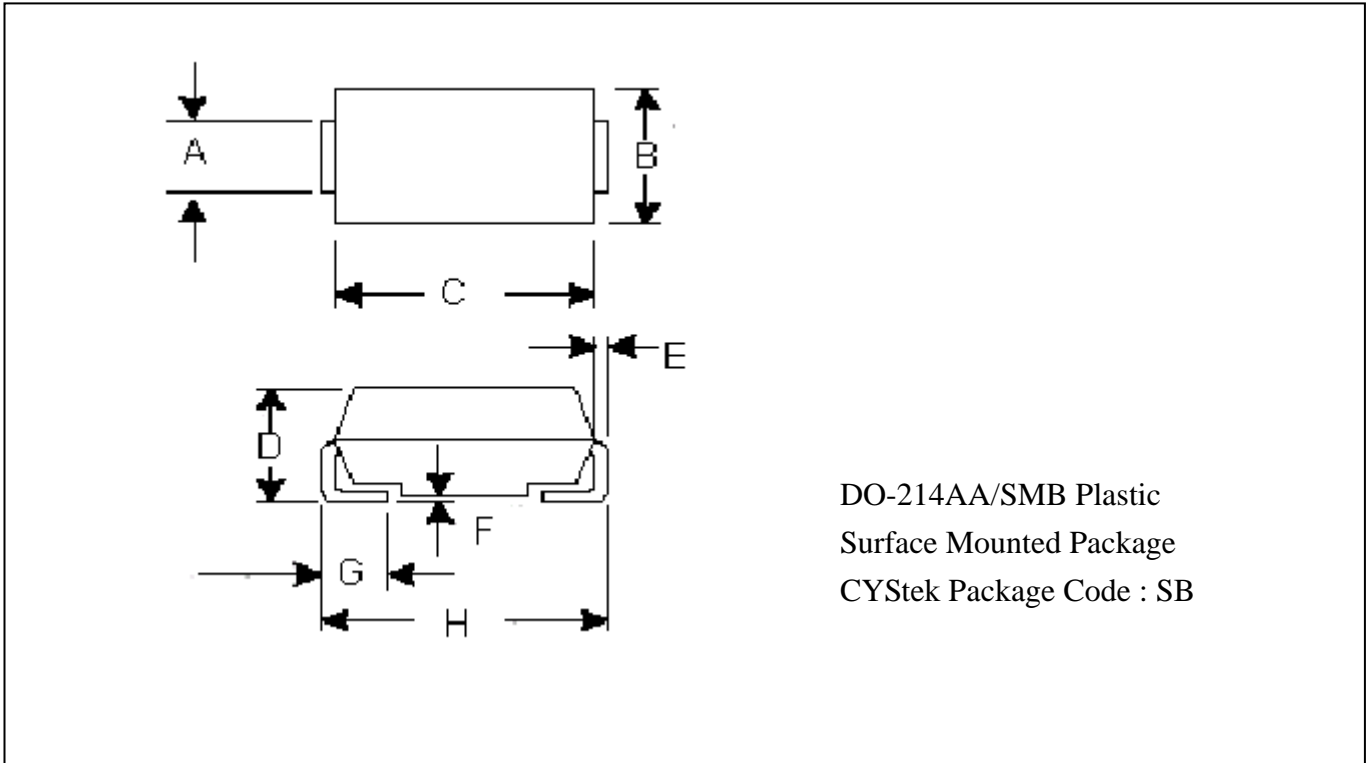
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T _L)	183°C	217°C
- Time (t _L)	60-150 seconds	60-150 seconds
Peak Temperature(T _p)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

DO-214AA/SMB Dimension



*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.075	0.083	1.91	2.11	E	0.006	0.012	0.15	0.31
B	0.130	0.155	3.30	3.94	F	0.002	0.008	0.05	0.20
C	0.154	0.185	3.90	4.70	G	0.035	0.056	0.90	1.41
D	0.078	0.103	1.99	2.61	H	0.200	0.220	5.08	5.59

Notes : 1.Controlling dimension : millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : Pure tin plated.
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0.

Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of CYStek.
- CYStek reserves the right to make changes to its products without notice.
- CYStek **semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- CYStek assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.