

Technical Data
Data Sheet 4861, Rev.-

MURC1510-MURC1560
Ultrafast Silicon Die

Applications:

- Switching Power Supply • General Purpose • Free-Wheeling Diodes • Polarity Protection Diode

Features:

- Glass-Passivated
- Epitaxial Construction.
- Low Reverse Leakage Current
- High Surge Current Capability
- Low Forward Voltage Drop
- Fast Reverse-Recovery Behavior

Maximum Ratings:

Characteristics	Symbol	MURC 1510	MURC 1515	MURC 1520	MURC 1540	MURC 1560	Unit
Peak Inverse Voltage	V_{RWM}	100	150	200	400	600	V
Average Rectified Forward Current (Rated V_R)	$I_{F(AV)}$	15 @ $T_C = 150^\circ\text{C}$				15 @ $T_C = 145^\circ\text{C}$	A
Peak Rectified Forward Current (Rated V_R , Square Wave, 20 kHz)	I_{FRM}	30 @ $T_C = 150^\circ\text{C}$				30 @ $T_C = 145^\circ\text{C}$	A
Max. Peak One Cycle Non-Repetitive Surge Current 8.3 ms, half Sine pulse	I_{FSM}	200			150		A
Operating Junction Temperature and Storage Temperature	T_J, T_{stg}	-65 to +175					$^\circ\text{C}$

Electrical Characteristics:

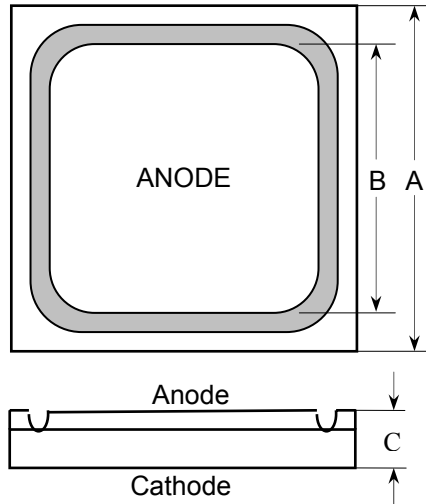
Characteristics	Symbol	MURC 1510	MURC 1515	MURC 1520	MURC 1540	MURC 1560	Unit
Max. Instantaneous Forward Voltage (Note1) ($I_F = 15$ Amp, $T_J = 150^\circ\text{C}$) ($I_F = 15$ Amp, $T_J = 25^\circ\text{C}$)	V_F	0.85 1.05			1.12 1.25	1.20 1.50	V
Max. Instantaneous Reverse Current (Note1) (Rated DC Voltage, $T_C = 150^\circ\text{C}$) (Rated DC Voltage, $T_C = 25^\circ\text{C}$)	I_R	500 10			500 10	1000 10	μA
Max. Junction Capacitance @ $V_R = 5\text{V}$, $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$, $V_{SIG} = 50\text{mV}$ (p-p)	C_T	240					pF
Max Reverse Recovery Time ($I_F = 1.0$ Amp, $di/dt = 50$ A/ μs) ($I_F = 0.5$ Amp, $I_R = 1.0$ A, $I_{REC} = 0.25\text{A}$)	t_{rr}	35 25			60 50		nS

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2\%$

- 221 West Industry Court ■ Deer Park, NY 11729-4681 ■ (631) 586-7600 FAX (631) 242-9798 •
- World Wide Web Site - <http://www.sensitron.com> • E-Mail Address - sales@sensitron.com •

Data Sheet 4861, Rev.-

Dimensions in inches (mm)



Top side metalization:
Al - 25 kÅ minimum or
Ti/Ni/Ag - 30 kÅ minimum

Bottom side metalization:
Ti/Ni/Ag - 30 kÅ minimum.

Bottom side is cathode, top side is anode.

Die type	Area (mil ²)	Dimension A ⁽¹⁾ Inch (millimeter)	Dimension B ⁽¹⁾ Inch (millimeter)	Dimension C ⁽²⁾ Inch (millimeter)
Si p-n die	120 x 120	0.120 (3.048)	0.094 (2.388)	0.010 (0.254)

⁽¹⁾ Tolerance is ± 0.003" (0.076 mm)

⁽²⁾ Tolerance is ± 0.001" (0.025 mm)

DISCLAIMER:

- 1- The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the Sensitron Semiconductor sales department for the latest version of the datasheet(s).
- 2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment, and safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement.
- 3- In no event shall Sensitron Semiconductor be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). Sensitron Semiconductor assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.
- 4- In no event shall Sensitron Semiconductor be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.
- 5- No license is granted by the datasheet(s) under any patents or other rights of any third party or Sensitron Semiconductor.
- 6- The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of Sensitron Semiconductor.
- 7- The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations.

Data Sheet 4861, Rev.-

MURC1510, MURC1515, MURC1520

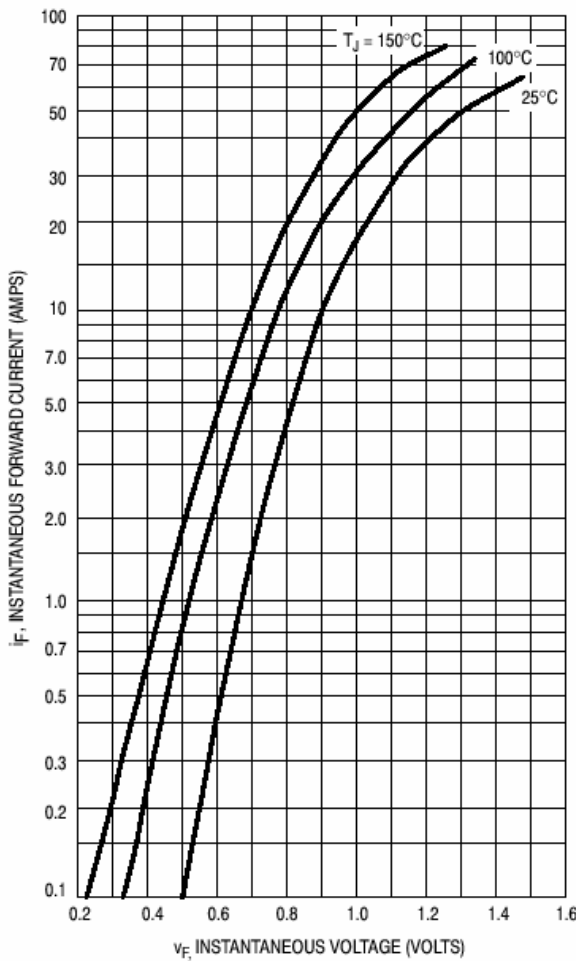


Figure 1. Typical Forward Voltage

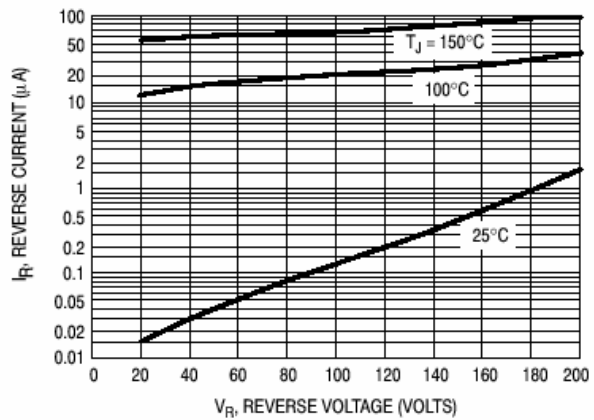


Figure 2. Typical Reverse Current

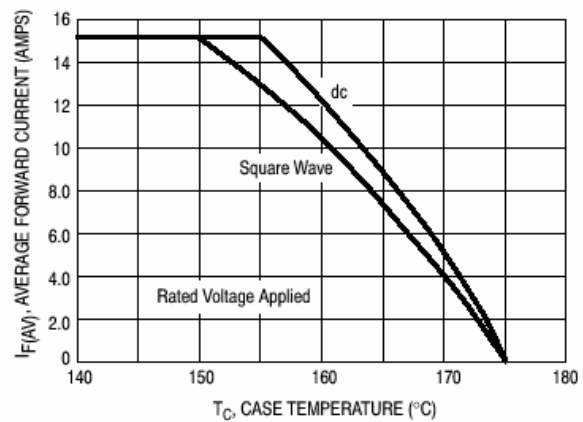


Figure 3. Current Derating, Case

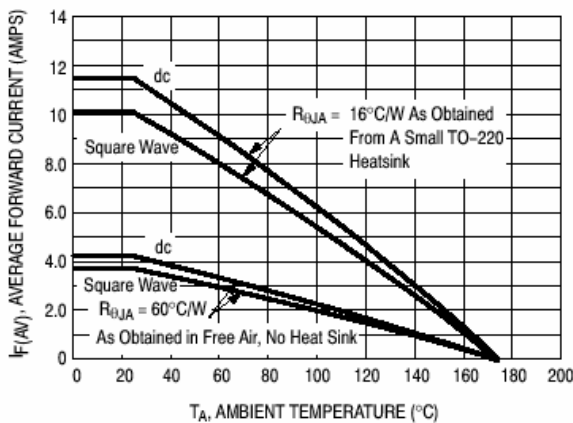


Figure 4. Current Derating, Ambient

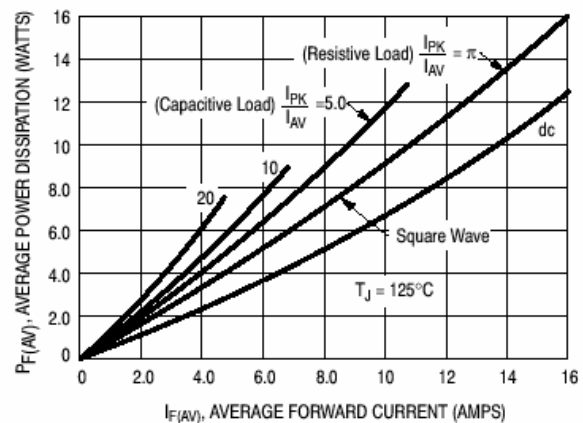


Figure 5. Power Dissipation

Data Sheet 4861, Rev.-

MURC1540

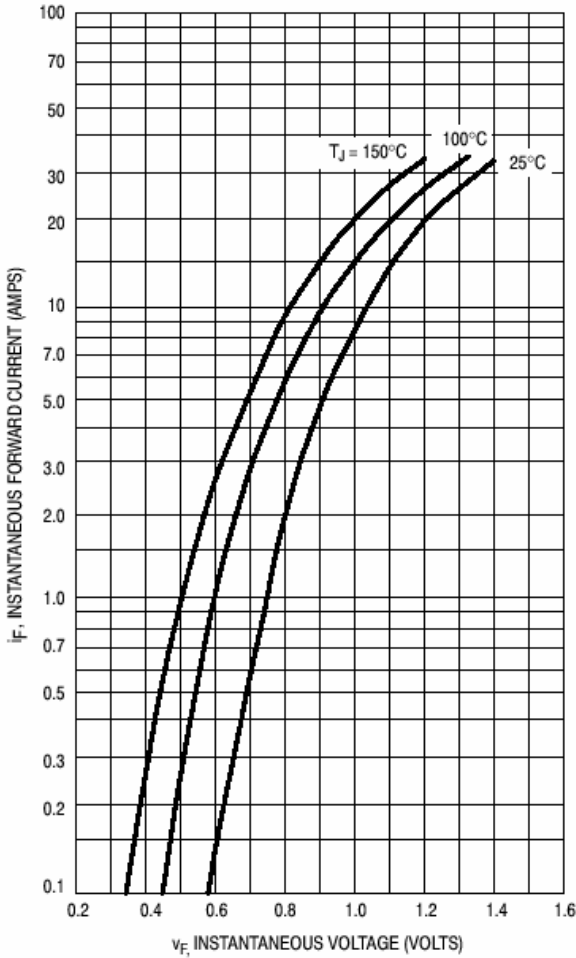


Figure 6. Typical Forward Voltage

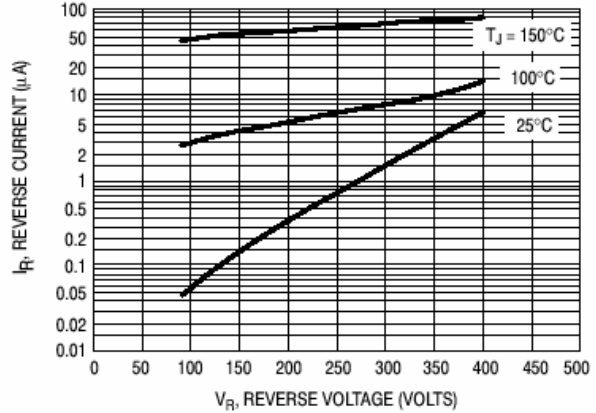


Figure 7. Typical Reverse Current

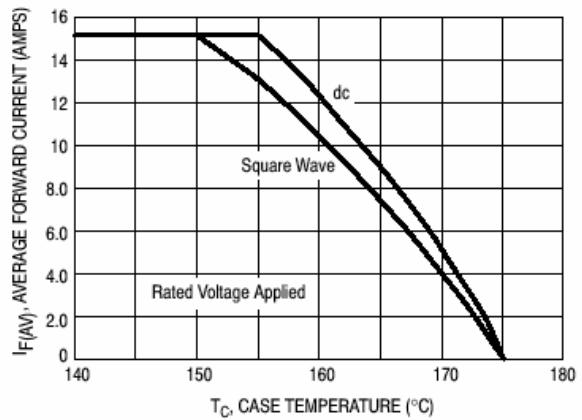


Figure 8. Current Derating, Case

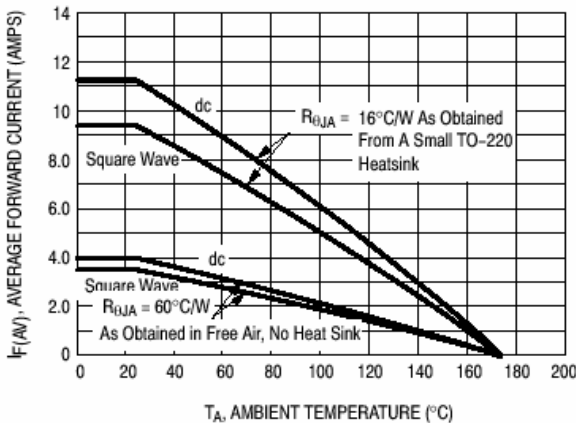


Figure 9. Current Derating, Ambient

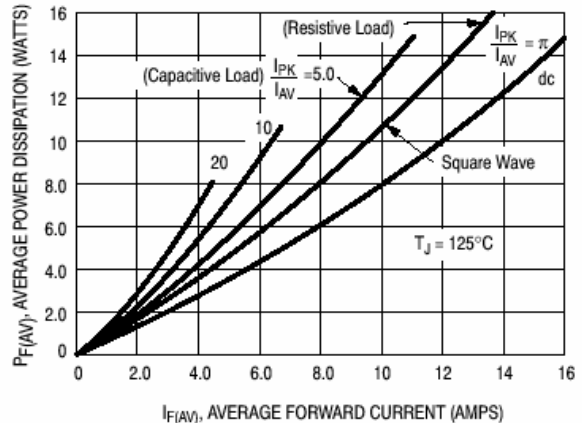


Figure 10. Power Dissipation

Data Sheet 4861, Rev.-

MURC1560

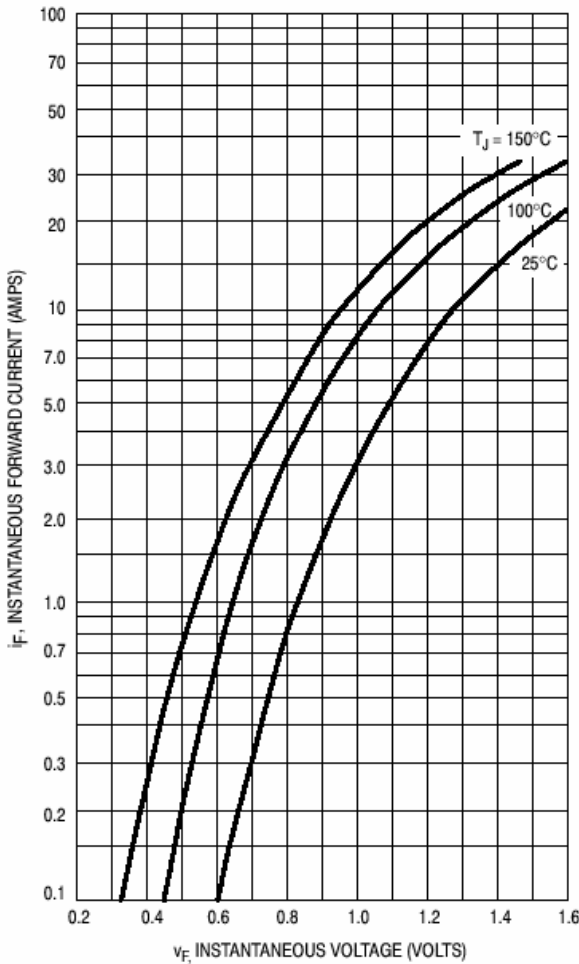


Figure 11. Typical Forward Voltage

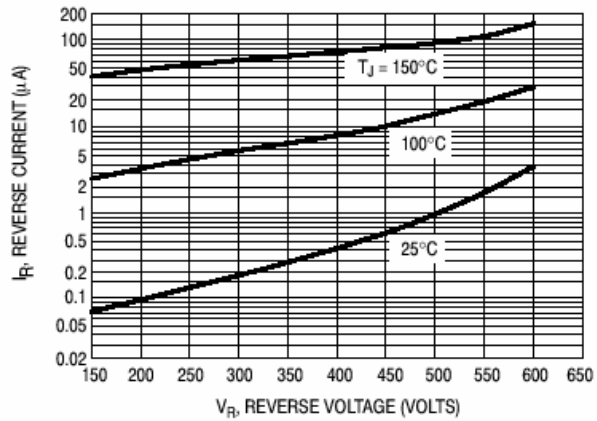


Figure 12. Typical Reverse Current

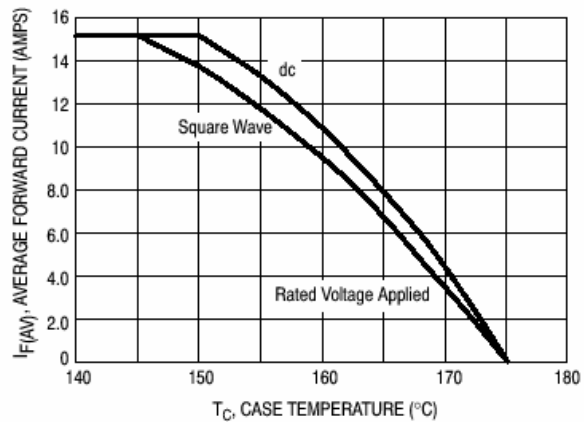


Figure 13. Current Derating, Case

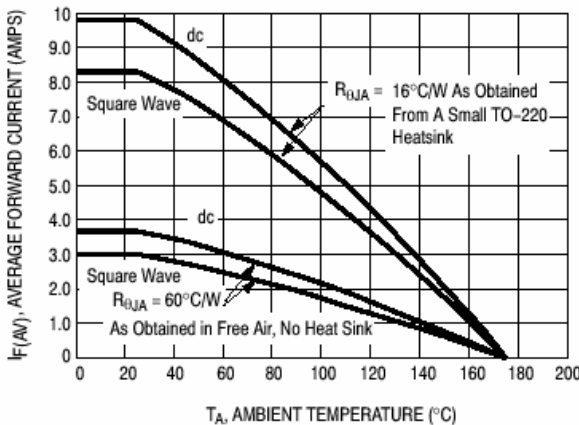


Figure 14. Current Derating, Ambient

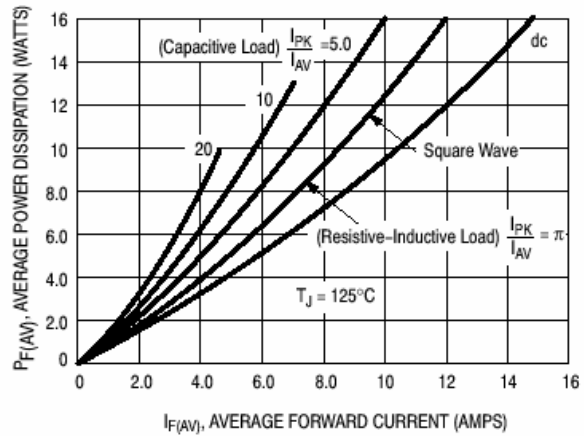


Figure 15. Power Dissipation

Data Sheet 4861, Rev.-

MURC1510, MURC1515, MURC1520, MURC1540, MURC1560

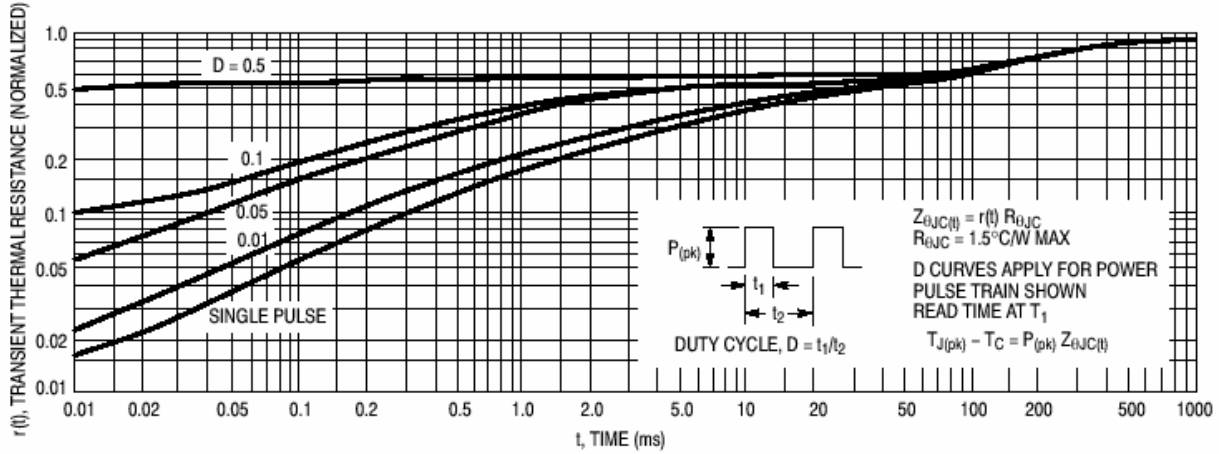


Figure 16. Thermal Response

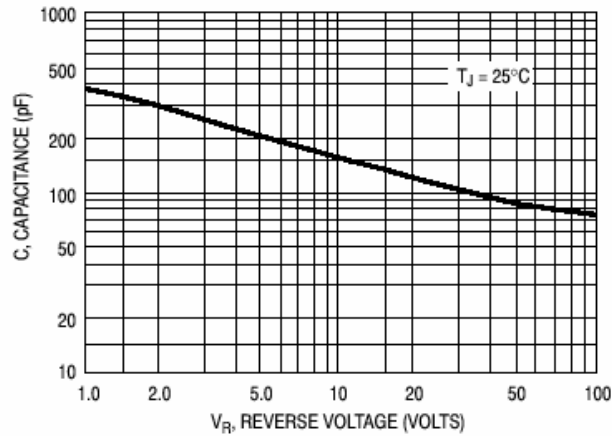


Figure 17. Typical Capacitance