

HIGH-TEMPERATURE 10A, 1200V SIC SCHOTTKY DIODE

FEATURES

- ▲ Reverse voltage up to 1200V.
- ▲ Operational beyond the -60°C to +230°C temperature range.
- ▲ Positive temperature coefficient for safe operation and ease paralleling.
- ▲ Extremely fast switching not dependent on temperature.
- ▲ Essentially no reverse or forward recovery.
- ▲ Ruggedized thru-hole packages.
- ▲ Also available as bare die.

APPLICATIONS

- ▲ Reliability-critical, Automotive, Aeronautics & Aerospace, Down-hole.
- ▲ Power converters, motor drives, switched-mode power supplies, power factor conversion.

DESCRIPTION

XTR1K1210 is 10A, 1200V 4H-SiC junction barrier Schottky diode able to reliably operate from -60°C to +230°C, with junction temperature able to reach +250°C.

This diode has zero reverse recovery charge, which makes it ideally suited for high-frequency and high-efficiency power systems with minimum or no cooling requirements.

XTR1K1210 has been designed to reduce system cost and ease adoption.

The XTR1K1210 is available in ruggedized thru-hole packages. Parts are also available as bare dies.

ORDERING INFORMATION

$\frac{X}{\downarrow}$ Source: X = X-REL Semi	$\frac{TR}{\downarrow}$ Process: TR = HiTemp, HiRel R = HiRel	$\frac{1K}{\downarrow}$ Part family	$\frac{1210}{\downarrow}$ Part number
---	--	--	--

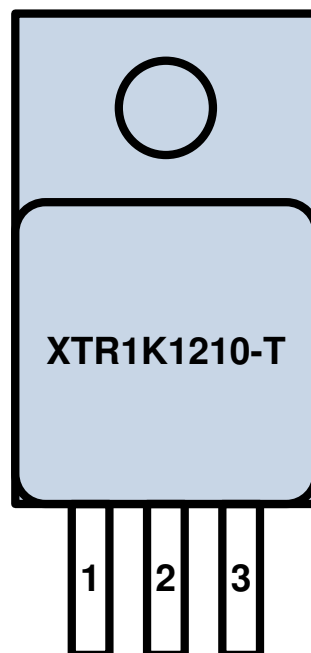
Product Reference	Temperature Range	Package	Pin Count	Marking
XTR1K1210-BD	-60°C to +230°C	Bare die		XTR1K1210
XTR1K1210-T	-60°C to +230°C	TO-257AA	3	XTR1K1210

Other packages and packaging configurations possible upon request.

PRODUCT PACKAGING

TO-257

Front view



- 1 Cathode
- 2 N.C.
- 3 Anode

ABSOLUTE MAXIMUM RATINGS

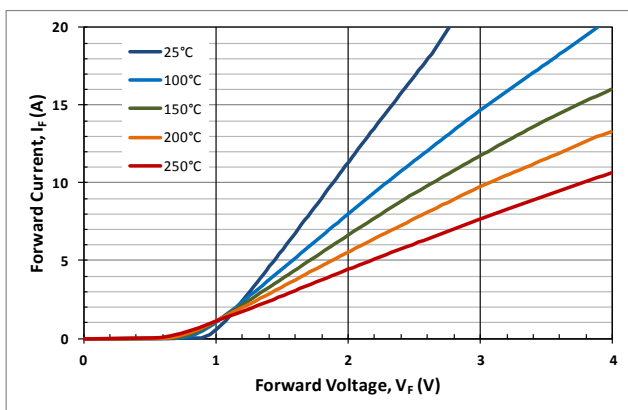
Parameter	Condition	Max	Units
DC Blocking Voltage V_{DC}		1200	V
Repetitive Peak Reverse Voltage V_{RRM}	$T_C=25^\circ\text{C}$.	1200	V
Surge Peak Reverse Voltage V_{RSM}		1200	V
Maximum Average Forward Current $I_{F(AVE)}$		10	A
Non-Repetitive Forward Surge Current I_{FSM}		50	A
Power Dissipation P_{Tot}	$T_C=25^\circ\text{C}$.	90	W
Derating Above $T_C=25^\circ\text{C}$		0.4	W/ $^\circ\text{C}$
Maximum Junction Temperature T_{JMax}		250	$^\circ\text{C}$
Storage Temperature T_{Stg}		-55 to +175	$^\circ\text{C}$

Caution: Stresses beyond those listed in “ABSOLUTE MAXIMUM RATINGS” may cause permanent damage to the device. These are stress ratings only and functionality of the device at these or any other condition beyond those indicated in the operational sections of the specifications is not implied. Exposure to “ABSOLUTE MAXIMUM RATINGS” conditions for extended periods may permanently affect device reliability.

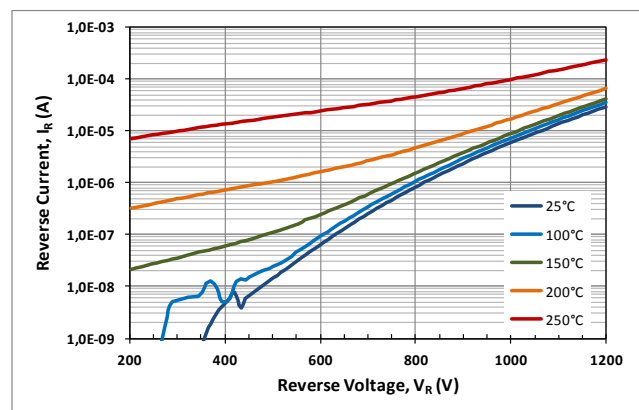
ELECTRICAL SPECIFICATIONS

Parameter	Condition	Min	Typ	Max	Units
Forward Voltage V_F	$I_F=10\text{A}$ $T_J=25^\circ\text{C}$ $T_J=250^\circ\text{C}$		1.7	2.1 4.1	V
Reverse Current I_R	$V_R=1200\text{V}$ $T_J=25^\circ\text{C}$ $T_J=250^\circ\text{C}$		0.04 0.25	0.2 3	mA
Junction-case Thermal Resistance Θ_{j-c}	TO-257		3.6		$^\circ\text{C}/\text{W}$

TYPICAL PERFORMANCE



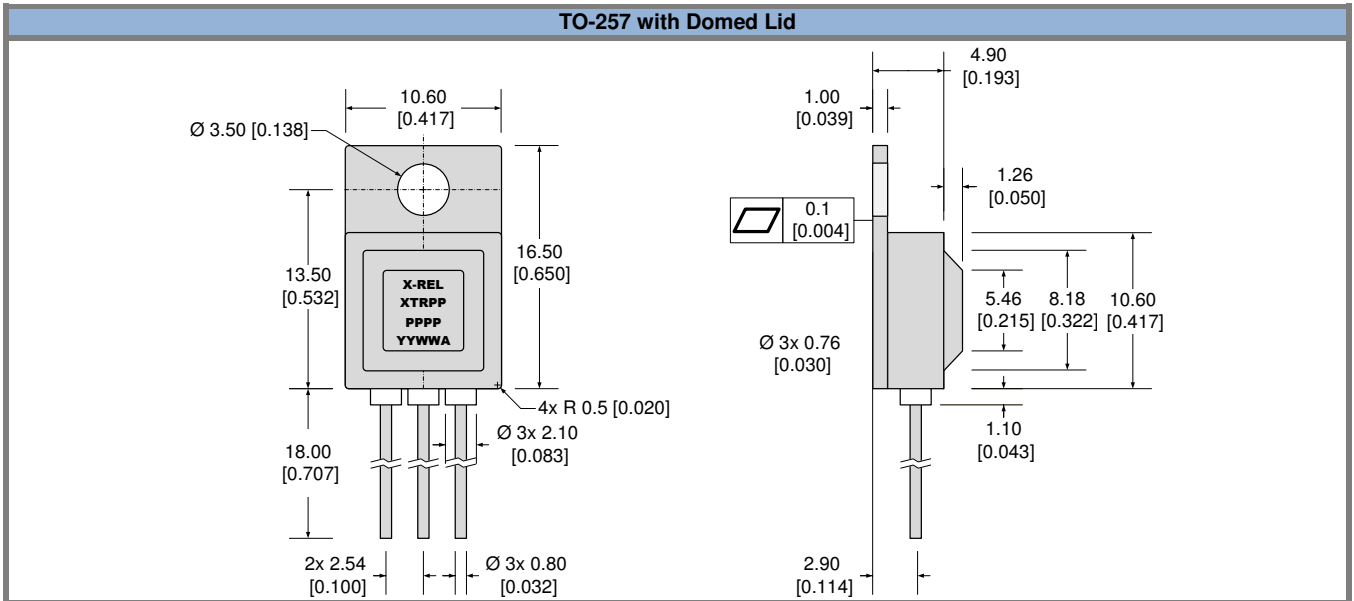
Typical Forward I-V characteristics over Temperature.



Typical Reverse I-V characteristics over Temperature.

PACKAGE OUTLINES

Dimensions shown in mm [inches].



Part Marking Convention

Part Reference: XTRPPPPPP	
XTR	X-REL Semiconductor, high-temperature, high-reliability product (XTRM Series).
PPPPP	Part number (0-9, A-Z).
Unique Lot Assembly Code: YYWWANN	
YY	Two last digits of assembly year (e.g. 11 = 2011).
WW	Assembly week (01 to 52).
A	Assembly location code.

IMPORTANT NOTICE & DISCLAIMER

Information in this document supersedes and replaces all information previously supplied. Information in this document is provided solely in connection with X-REL Semiconductor products.

The information contained herein is believed to be reliable. X-REL Semiconductor makes no warranties regarding the information contained herein. X-REL Semiconductor assumes no responsibility or liability whatsoever for any of the information contained herein. X-REL Semiconductor assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. X-REL Semiconductor reserves the right to make changes, corrections, modifications or improvements, to this document and the information herein without notice. Customers should obtain and verify the latest relevant information before placing orders for X-REL Semiconductor products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information.

Unless expressly approved in writing by an authorized representative of X-REL Semiconductor, X-REL Semiconductor products are not designed, authorized or warranted for use in military, aircraft, space, life saving, or life sustaining applications, nor in products or systems where failure or malfunction may result in personal injury, death, or property or environmental damage.

General Sales Terms & Conditions apply.

CONTACT US

For more information on X-REL Semiconductor's products, technical support or ordering:

- ✓ Web: www.x-relsemi.com/products
- ✓ Tel: +33 456 580 580
- ✓ Fax: +33 456 580 599
- ✓ Sales: sales@x-relsemi.com
www.x-relsemi.com/EN/Sales-Representatives
- ✓ Information: info@x-relsemi.com
- ✓ Support: support@x-relsemi.com

X-REL Semiconductor

90, Avenue Léon Blum
38100 Grenoble
France