

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

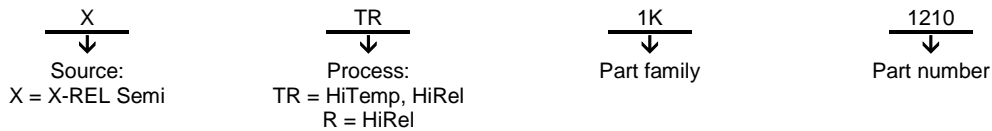
XTR1K1210 is 10A, 1200V 4H-SiC junction barrier Schottky diode able to reliably operate from -60°C to +230°C, with junction temperature able to reach +250°C.

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



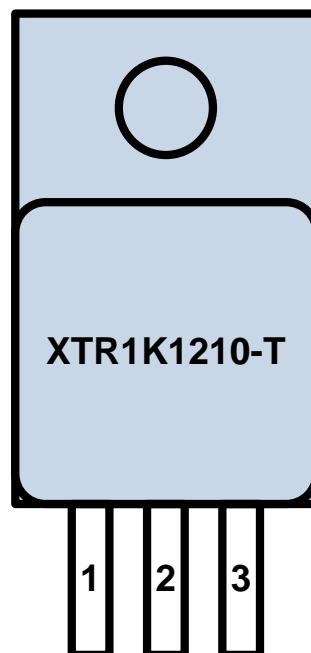
Product Reference	Temperature Range	Package	Pin Count	Marking
XTR1K1210-BD	-60°C to +230°C	Bare die		XTR1K1210
XTR1K1210-T	-60°C to +230°C	TO-257AA	3	XTR1K1210

Other packages and packaging configurations possible upon request.

PRODUCT PACKAGING

TO-257

Front view



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

ABSOLUTE MAXIMUM RATINGS

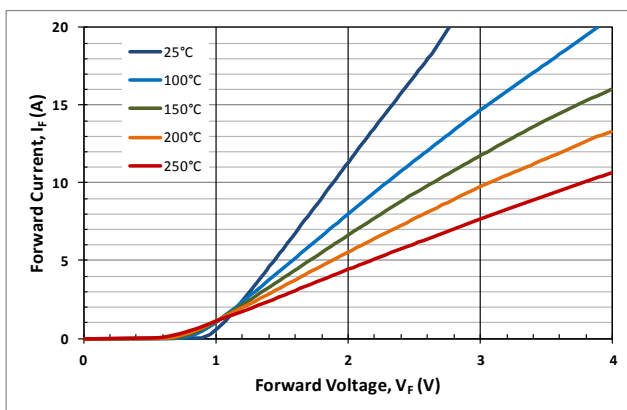
Parameter	Condition	Max	Units
DC Blocking Voltage V_{DC}		1200	V
Repetitive Peak Reverse Voltage V_{RRM}	$T_C=25^\circ\text{C}$.	1200	V
Surge Peak Reverse Voltage V_{RSM}		1200	V
Maximum Average Forward Current $I_{F(AVE)}$		10	A
Non-Repetitive Forward Surge Current I_{FSM}		50	A
Power Dissipation P_{Tot}	$T_C=25^\circ\text{C}$.	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.

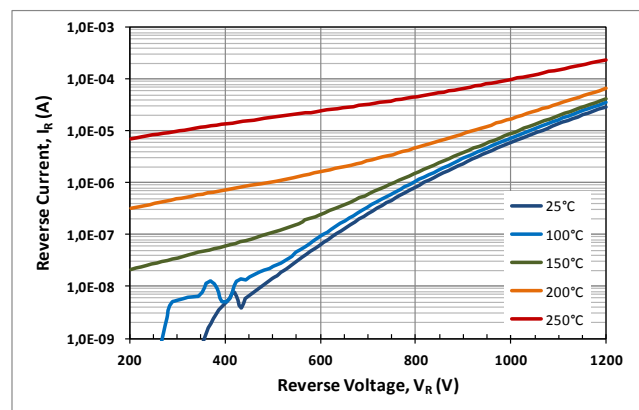
ELECTRICAL SPECIFICATIONS

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



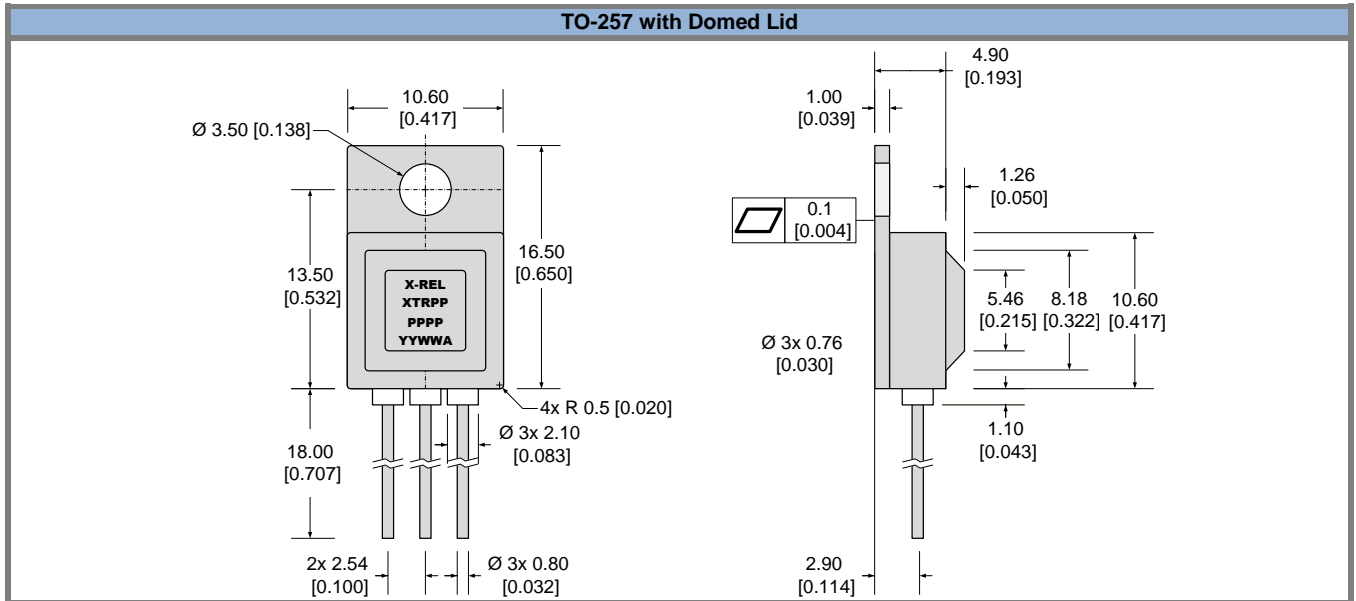
Typical Forward I-V characteristics over Temperature.



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.

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