

XD1240T4

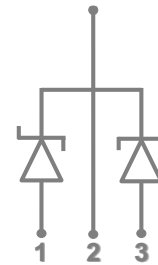
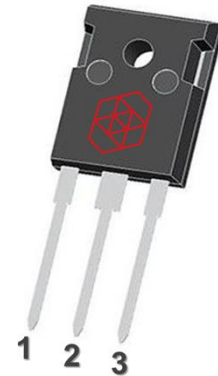
1200V 40A SiC Schottky Barrier Diode in TO-247-3L Package

Datasheet version: 1.0 Preliminary

Features

BV_{dss}	I_f (135°C) **	I_f (155°C) **	Q_C^*
1200 V	52A	40 A	103 nC

- No reverse recovery
- High speed switching
- Low switching losses
- Low heatsink requirement
- Positive temperature coefficient



Applications

- Switching Power Supplies
- Power Factor Corrections
- Motor Drives
- Charging pile

Description

- These devices are 1200 SiC Schottky Barrier Diodes (SBD) with zero reverse recovery that allows systems to operate at higher switching frequencies. Lower heat dissipation requirements and higher system efficiency can be achieved in this TO-247-3L package. Two pins are in parallel to deliver 40A continuous current at 155°C.

Device Characteristics

Static Parameters				Test data			
	Sym.	Parameters	Conditions	Min	Typical	Max	Unit
1	V _{DC}	DC Blocking Voltage	I _R =100 μA	1200	/	/	V
2	V _F	Forward Voltage	I _F =15A, T _j =25°C	/	1.4	1.8	V
			I _F =15A, T _j =175°C	/	2.0	2.7	
3	I _R	Reverse Current	V _R =1200V, T _j =25°C	/	10	50	μA
			V _R =1200V, T _j =175°C	/	50	300	
4	C	Total Capacitance	V _R =0V, f=1MHz	/	1490	/	pF
			V _R =400V, f=1MHz	/	97	/	
			V _R =800V, f=1MHz	/	72	/	
5	Q _C	Total capacitive charge	V _R =800V	/	103	/	nC
6	E _C	Capacitance Stored Energy	V _R =800V	/	29.6	/	μJ
Thermal Parameters				Test data			
	Sym.	Parameters	Conditions	Min	Typical	Max	Unit
1	R _{th(j-c)}	Thermal resistance	Per device or per leg	/	1.2*/0.6**	/	°C/w

** Per device * Per leg

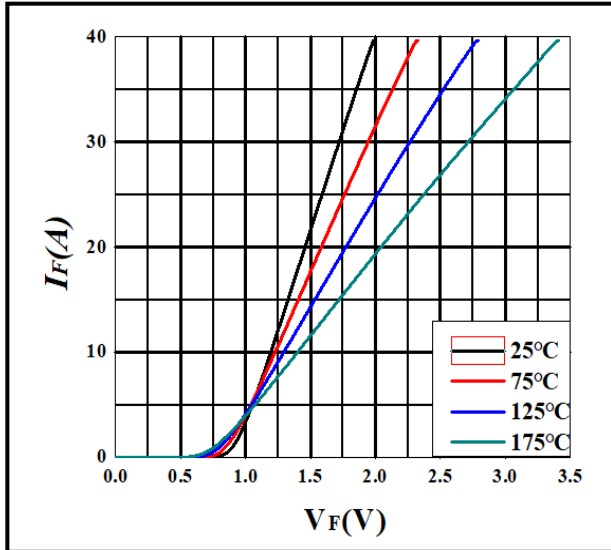
Absolute Max. Ratings

	Symbols	Parameters	Test Conditions	Value	Unit
1	V_{RR-max}	Reverse Voltage (Repetitive Peak)	$T_C = 25^\circ C$	1200	V
2	V_{RS-max}	Reverse Voltage (Surge Peak)	$T_C = 25^\circ C$	1200	V
3	V_{dc-max}	Reverse Voltage (DC)	$T_C = 25^\circ C$	1200	A
4	I_{F-max}	Continuous Forward Current (per device)	$T_C = 25^\circ C$	57/115	A
			$T_C = 135^\circ C$	26/52	
			$T_C = 155^\circ C$	20/40	
5	I_{FS-max}	Non-repetitive Forward Current (Surge)	$T_C = 25^\circ C$ $t_p = 10ms$ Half Sine Pulse	205*	A
6	$P_{total-max}$	Total Power Dissipation	$T_C = 25^\circ C$	238*	W
7	$\int i^2 dt_{max}$	i^2t value	$T_C = 25^\circ C$ $t_p = 10ms$	210*	A ² s
8	T_{o-max}	Operation Temperature	/	-55 to 175	°C
9	$T_{s-storage}$	Storage temperature	/	-55 to 175	°C
10	M	Mounting Torque	M3 Screw	1	Nm

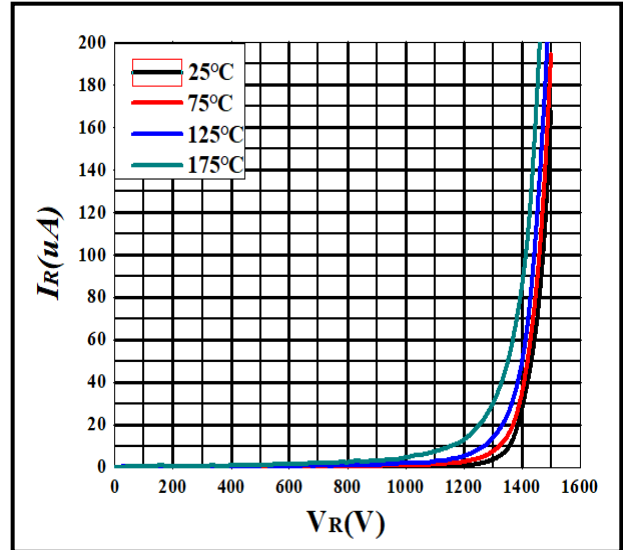
Ordering

Order Code	Package Type	Packaging Method	Qty
XD1240T4	TO-247F-3L	Tube	300

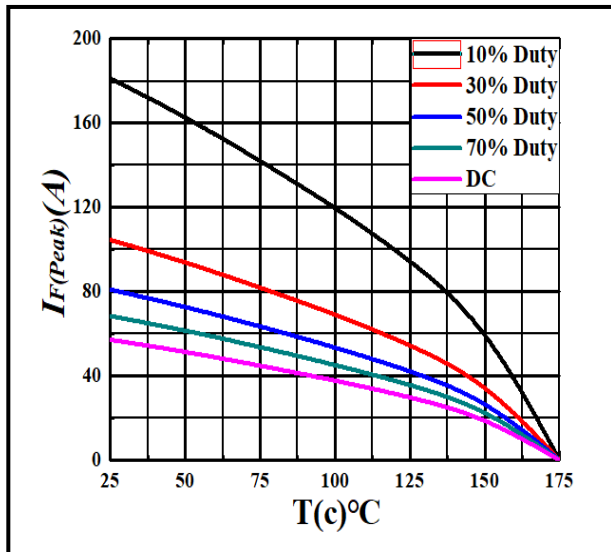
Electrical Performance



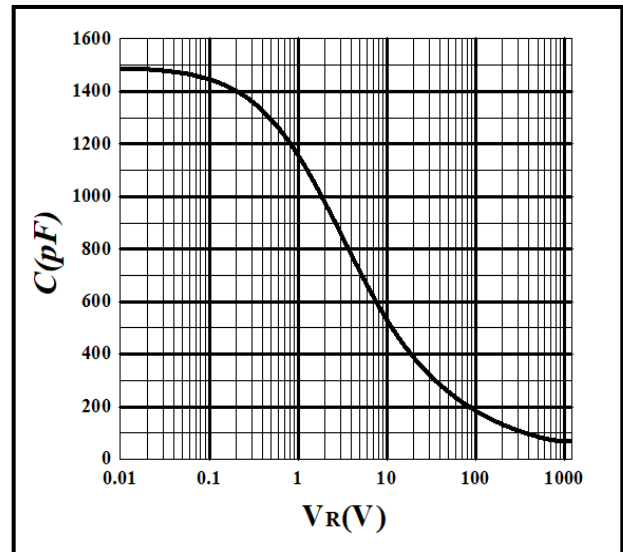
Forward Characteristics



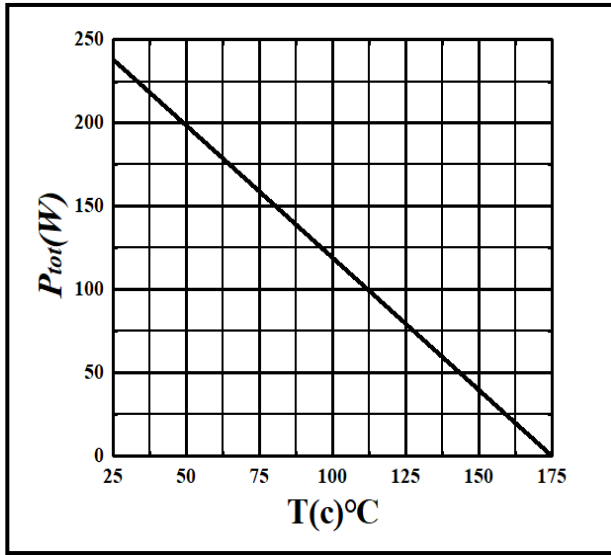
Reverse Characteristics



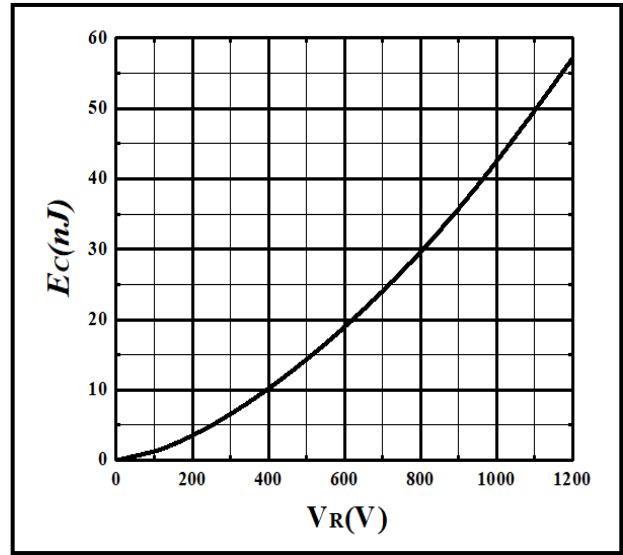
Current Derating



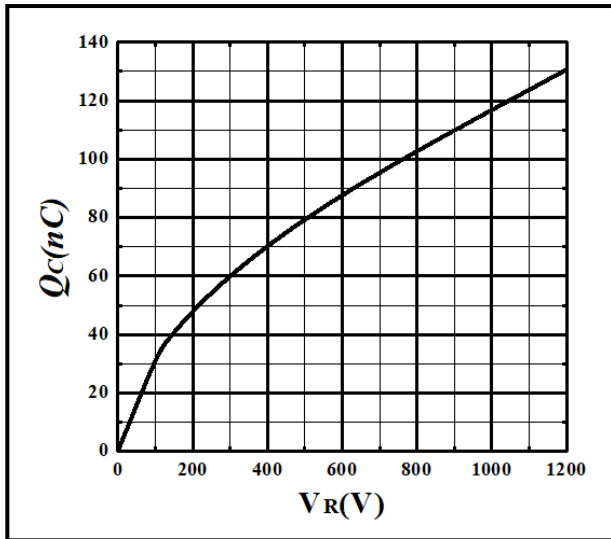
Capacitance vs. V_R



Power Derating

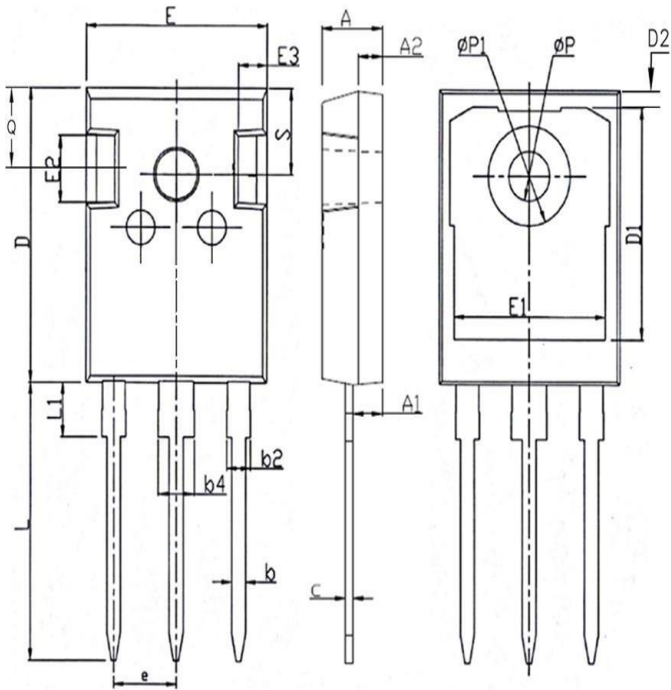


Capacitance Stored Energy



Total Capacitance Charge vs. V_R

Package Information



SYMBOL	mm		
	MIN	NOM	MAX
A	4.8	5	5.2
A1	2.21	2.41	2.61
A2	1.85	2	2.15
b	1.11	1.21	1.36
b2	1.91	2.01	2.21
b4	2.91	3.01	3.21
c	0.51	0.6	0.75
D	20.7	21	21.3
D1	16.25	16.55	16.85
D2	1	1.2	1.35
E	15.5	15.8	16.1
E1	13	13.3	13.6
E2	4.8	5	5.2
E3	2.3	2.5	2.7
e	5.44 BSC		
L	19.62	19.92	20.22
L1	-	-	4.3
ϕP	3.4	3.6	3.8
$\phi P1$	-	-	7.3
Q	5.4	5.8	6.2
S	6.20 BSC		