fast SiC semiconductor

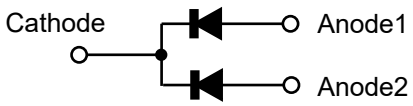
FC06200

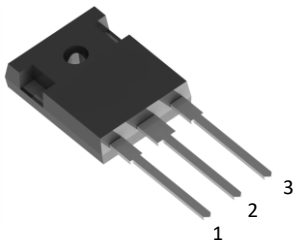
Product Datasheet

Silicon Carbide Merged PN-Schottky Diode

650V SiC MPS High Speed Rectifier – Husky Series

Product Information:





TO-247-3L

Features

- Low Capacitive Charge (Q_C)
- Zero Reverse Recovery and zero Forward Recovery
- Ultra-Low Switching Loss
- Optimized for High Speed Applications
- RoHS Compliant and Halogen Free

Terminal	Packaging Type
	TO-247-3L
Anode1	1
Anode2	3
Cathode	2, Tab

Benefits

- Higher System Efficiency
- Increase Parallel Device Convenience
- Enable High Temperature Application
- Allow High Frequency Operation
- Realize Compact and Lightweight Systems
- High Reliability

Potential Applications

- Switching Mode Power Supply
- Power Factor Correction
- Portable Adaptor
- Renewable Energy

Key Performance Parameters (per leg)

Parameter	Symbol	Value	Unit
DC Blocking Voltage	V_R	650	V
Nominal Forward Current	$I_{F,NOM}$	100	A
Total Capacitive Charge	Q_C	170	nC
Capacitance Stored Energy	E_C	25	µJ
Junction & Storage Temperature	T_j, T_{stg}	-55 to 175	°C
Continuous Forward Current	$I_{F,max\ (cont.)}$	215*	A
I^2t Value	$\int i^2dt$	500*	A^2s

Part Number	Package	Marking
FC06200E-3	TO-247-3L	FC06200
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For further information about comparable products, please contact (www.fastsic.com).

Maximum Ratings (per leg):

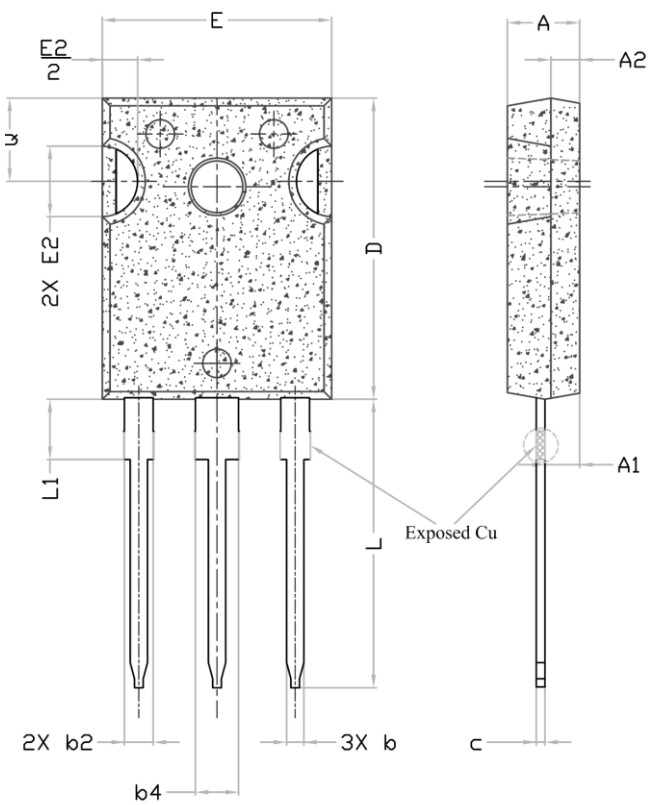
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Continuous Forward Current	I_F	--	--	75* 127* 215*	A	T_c≤150˚C, *Duty*=100% T_c≤110˚C, *Duty*=100% T_c≤25˚C, *Duty*=100%
Non-Repetitive Forward Surge Current, Sinusoidal Halfwave	$I_{F,SM}$	--	--	312*		T_c=25˚C, t_p=10ms
Non-Repetitive Peak Forward Surge Current	$I_{F,max}$	--	--	2500*		T_c=25˚C, t_p=10µs
I^2t Value	$\int i^2dt$	--	--	500*	A^2s	T_c=25˚C, t_p=10ms
Repetitive Peak Reverse Voltage	V_{RRM}	--	--	650	V	T_c=25˚C
Junction Temperature	T_j	-55	--	175	˚C	--
Storage Temperature	T_{stg}	-55	--	175		

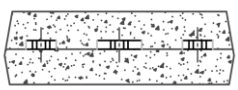
* estimated

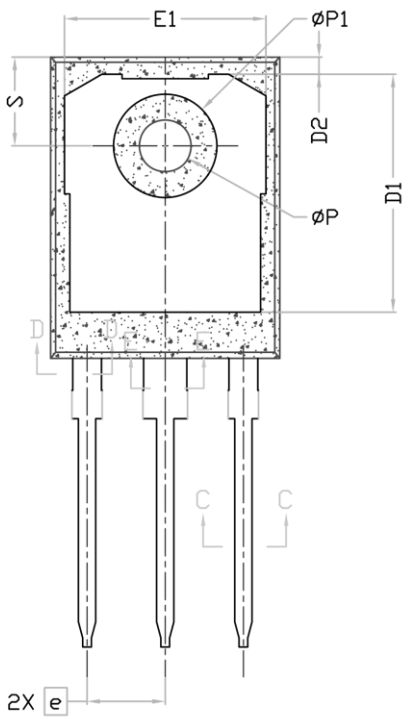
Electrical Characteristics (per leg):

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
DC Characteristics						
DC Blocking Voltage	V_{DC}	650	--	--	V	T_j=25˚C
Forward Voltage	V_F	--	1.45 1.85	1.85 --		I_F=100A, T_j=25˚C I_F=100A, T_j=175˚C
Reverse Current	I_R	--	3 30	--	µA	V_R=520V, T_j=25˚C V_R=520V, T_j=175˚C
AC Characteristics						
Total Capacitive Charge	Q_C	--	156.4	--	nC	V_R=400V, T_j=25˚C
Total Capacitance	C_j	--	 227.5	--	pF	V_R=1V, f=1MHz, T_j=25˚C V_R=200V, f=1MHz, T_j=25˚C V_R=400V, f=1MHz, T_j=25˚C
Capacitance Stored Energy	E_C	--	22	--	µJ	V_R=400V, T_j=25˚C

Package Outline (TO-247-3L)



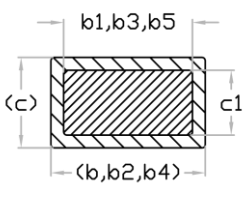




Symbol	Dimension (Millimeters)		
	Min.	Nom.	Max.
A	4.83	5.02	5.21
A1	2.29	2.41	2.55
A2	1.50	2.00	2.49
b	1.12	1.20	1.33
b1	1.12	1.20	1.28
b2(4)	1.91	2.00	2.39
b3	1.91	2.00	2.34
b4(4)(6)	2.87	3.00	3.22
b5	2.87	3.00	3.18
c(4)	0.55	0.60	0.69
c1	0.55	0.60	0.65
D(2)	20.80	20.95	21.10
D1(3)	16.25	16.55	17.65
D2	0.51	1.19	1.35
E(2)	15.75	15.94	16.13
E1(3)	13.46	14.02	14.16
E2(1)	4.32	4.91	5.49
e		5.44 BSC.	
L	19.81	20.07	20.32
L1(4)	4.10	4.19	4.40
ϕP(5)	3.56	3.61	3.65
ϕP1		7.19 REF.	
Q	5.39	5.79	6.20
S	6.04	6.17	6.30

Note:

1. Slot required, notch may be rounded.
2. Dimension D & E do not include mold flash. Mold flash shall not exceed 0.127mm pre side. These dimensions are measured at the outermost extreme of the plastic body.
3. Thermal pad contour optional within dimension D1 & E1.
4. Lead finish uncontrolled in L1.
5. ϕP to have a maximum draft angle of 1.5° to the top of the part with a maximum hole diameter of 3.91mm.
6. Dimension “b2” and “b4” does not include dambar protrusion. Allowable dambar protrusion shall be 0.10mm total in excess of “b2” and “b4” dimension at maximum material condition.



Section C--C,D--D,E--E

Revision History

Date	Revision	Changes
25.12	Tentative	1st issue

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