SC04US02

Surface Mounted Silicon Carbide Ultra Fast Recovery High Voltage Rectifier Diode

400mA 2.0kV 20nS

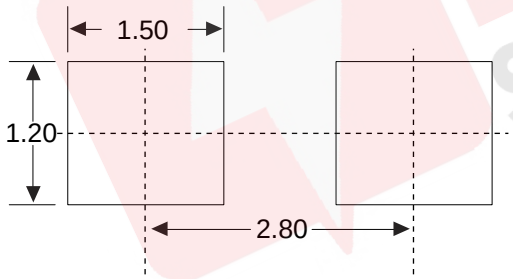
Applications:

- For surface mounted applications.
- Silicon carbide chip structure.
- High current and high voltage design.
- Ultra fast recovery time and ultra-high frequency.
- High temperature resistance.
- UL94 V-0 Rated Material.
- Epoxy resin molded in vacuum.
- Have anticorrosion in the surface.
- Lead free in Comply with EU RoHS 2011/65/EU directives.

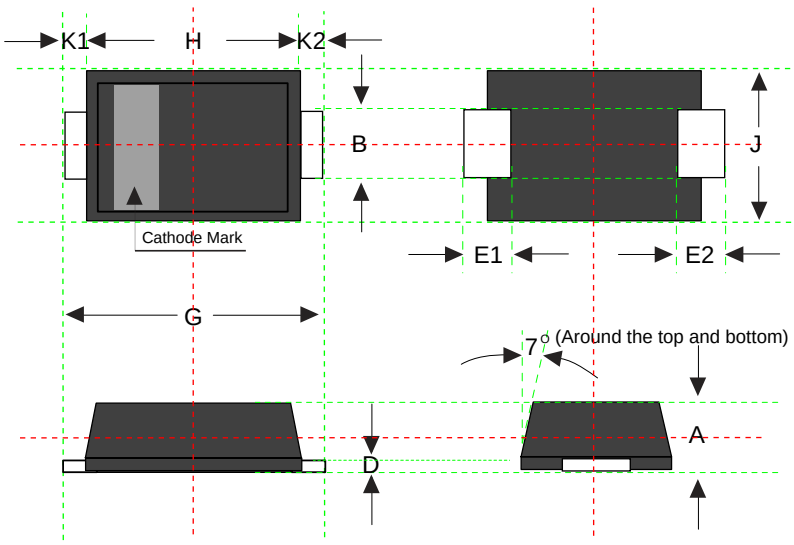
Mechanical Data:

- Case: SOD-123FL
- Quantity Per Reel : 3,000pcs
- Approx. Weight: 0.02g
- Terminals: Solderable per MIL-STD-750, Method 2026

Suggested Solder Pad Layout: Unit:mm

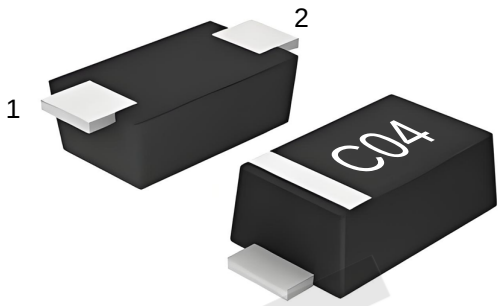


Package Size:



Reference Shape:

RoHS COMPLIANT



1: Cathode 2: Anode

Primary Characteristics:

$I_{F(AV)}$	400	mA
V_{RRM}	2.0	kV
I_{FSM}	20	A
I_{RM}	0.5	uA
V_{FM}	1.7	V
T_{RR}	20	nS
T_J (max.)	175	° C

SOD-123FL Series

DIM	DIMENSIONS			
	MM		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.10	0.035	0.043
B	0.80	1.10	0.031	0.043
C				
D	0.12	0.20	0.005	0.008
E1,E2	0.70	0.90	0.028	0.035
F				
G	3.50	3.80	0.138	0.150
H	2.60	2.90	0.102	0.114
J	1.70	1.90	0.067	0.075
K1,K2	0.40	0.50	0.016	0.020

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HVGT SEMICONDUCTOR

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Maximum Ratings And Characteristics: (Ta=25° C, Ambient temperature unless stated otherwise.)

Items	Symbols	Condition	Data Value	Units
Maximum Repetitive Reverse Voltage	V_{RRM}	--	2000	V
Max.Working Peak Reverse Voltage	V_{RWM}			
Max.DC Blocking Voltage	V_{DC}			
RMS Reverse Voltage	V_{RMS}	--	1400	V
Maximum Average Forward Current	I_{FAVM}	T_C= 75° C	400	mA
Non-Repetitive Forward Surge Current	I_{FSM}	60Hz Half-Sine Wave; 8.3mS	20	A
		60Hz Square Wave; 1.0mS	24	A
Current Squared Time	I^2t	1.0mS ≤ t ≤ 8.3mS	10.375	A^2s
Maximum Junction Temperature	T_J		175	° C
Allowable Operation Case Temperature	T_C		-55~175	° C
Storage Temperature	T_{STG}		-65~200	° C
Thermal Resistance from Junction	$R_{th\ (J-L)}$	To Lead, Note1	20	° C/W
	$R_{th\ (J-A)}$	To Ambient, Note1	75	° C/W

Electrical Characteristics: (Ta=25° C, Ambient temperature unless stated otherwise.)

Items	Symbols	Condition	Data Value	Units
Maximum Forward Voltage Drop	V_{FM}	At I_{FAVM}	1.7	V
Maximum Reverse Current	I_{R1}	At V_{RRM}, T_A=25° C	0.5	uA
	I_{R2}	At V_{RRM}, T_A=125° C	20	uA
Maximum Reverse Recovery Time	T_{RR}	I_F=0.5I_R ; I_R =I_{FAVM} ; I_{RR} =0.25I_R	20	nS
Typical Junction Capacitance	C_J	At V_R = 0VDC, f = 1MHz	2.9	pF

Note:

1. Mounted on P.C.B. with 8mm*8mm copper pad areas.
2. Specifications subject to change without notice. Photo is representation only.
3. Standard package quantity: 3,000PCS/in Reel.

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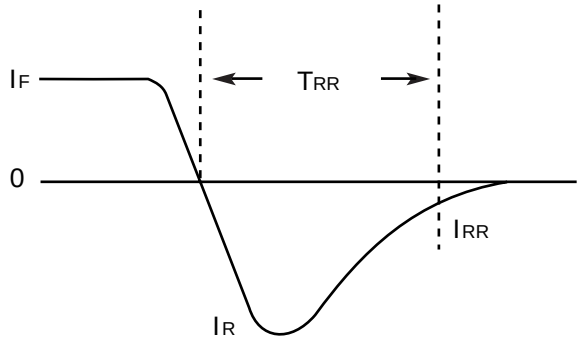
FIGURE 01 Reverse Recovery Measurement Waveform



Typical data capture points: I_F =0.5I_R , I_R , I_{RR} =0.25I_R

I_R is typically the rated average forward current maximum (I_{FAVM}) of the D.U.T

FIGURE 02 Forward Current Derating Curve

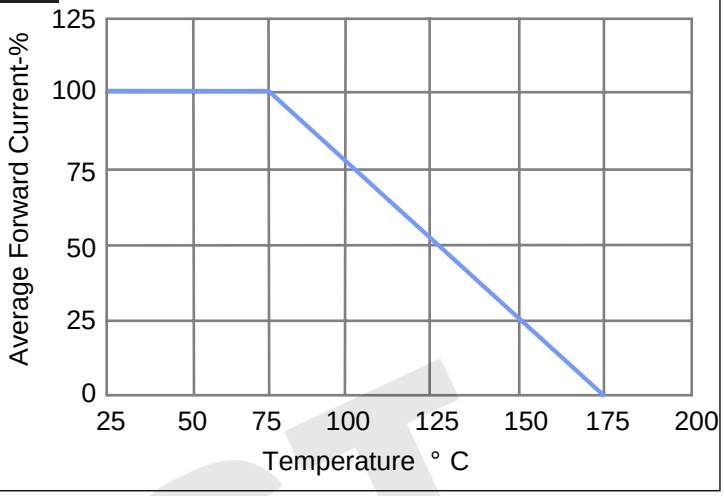


FIGURE 03 Forward Characteristics

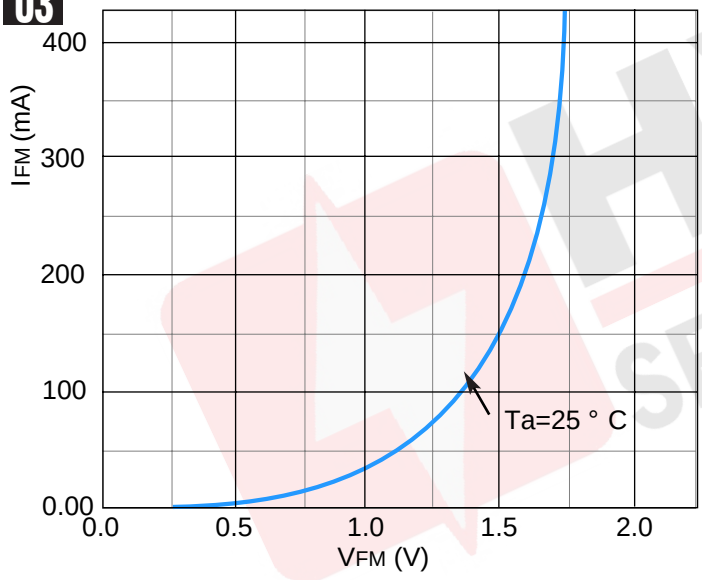


FIGURE 04 Reverse Characteristics

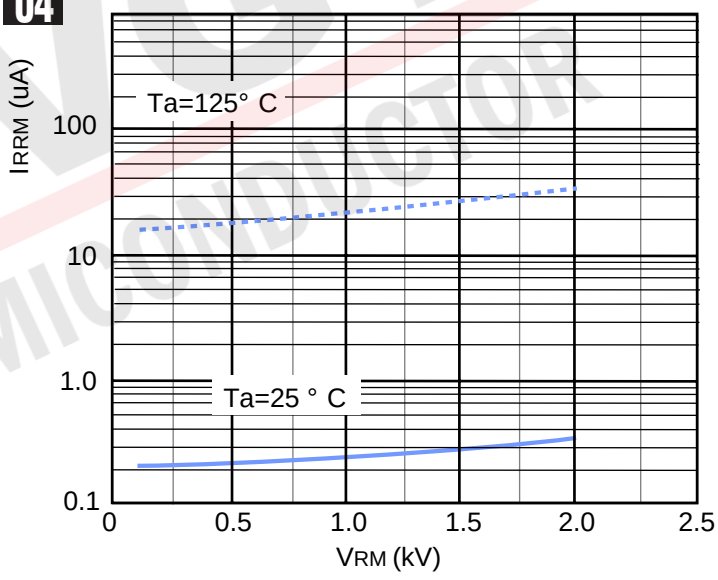
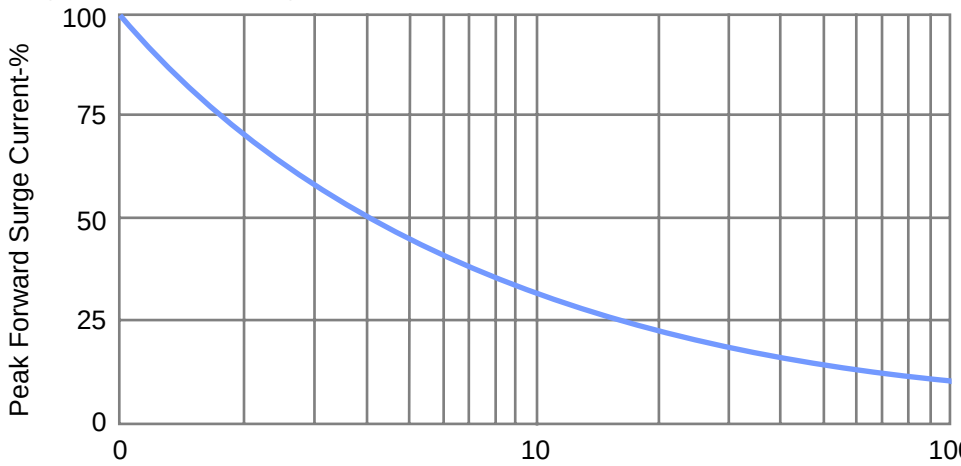


FIGURE 05 Repetitive Surge Current Derating Curve



This curve represents the percentage of published maximum surge rating as a function of surge repetition.

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