

SICR10650 SICRF10650

650V SIC POWER SCHOTTKY RECTIFIER

Description

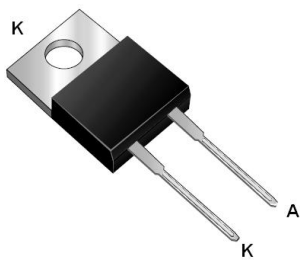


SICR10650/ SICRF10650 are all single SiC Schottky rectifiers packaged in TO-220AC, ITO-220AC case. The device is a high voltage Schottky rectifier that has very low total conduction losses and very stable switching characteristics over temperature extremes. The SICR12600/ SICRF12600 are ideal for energy sensitive, high frequency applications in challenging environments.

Features

- 175°C T_J operation
- Ultra-low switching loss
- Switching speeds independent of operating temperature
- Low total conduction losses
- High forward surge current capability
- High package isolation voltage
- Guard ring for enhanced ruggedness and long term reliability
- Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional electrical and life testing can be performed upon request

Applications

- Alternative energy inverters
- Power Factor Correction (PFC)
- Free-Wheeling diodes
- Switching supply output rectification
- Reverse polarity protection

<p>SICR10650</p> 	<p>SICRF10650</p> 
TO-220AC	ITO-220AC
	

Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	-	650	V
Average Rectified Forward Current	I _{F(AV)}	50% duty cycle @T _c =150°C, rectangular wave form	10	A
Peak One Cycle Non-Repetitive Surge Current	I _{FSM}	8.3ms, Half Sine pulse, T _c = 25 °C	110	A

Electrical Characteristics:

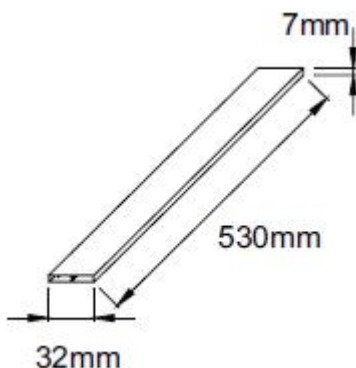
Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V _{F1}	@ 10A, Pulse, T _J = 25 °C	1.51	1.7	V
	V _{F2}	@ 10A, Pulse, T _J = 175 °C	1.75	2.5	V
Reverse Current at DC condition*	I _{R1}	@V _R = rated V _R T _J = 25 °C	25	100	μA
Reverse Current *	I _{R2}	@V _R = rated V _R T _J = 175 °C	32	200	μA
Junction Capacitance	C _T	@V _R = 0V, T _C = 25 °C, f _{SIG} = 1MHz	695	740	pF
		@V _R = 200V, T _C = 25 °C, f _{SIG} = 1MHz	73	78	
		@V _R = 400V, T _C = 25 °C, f _{SIG} = 1MHz	70	75	
Voltage Rate of Change	dv/dt	-	-	10,000	V/μs

* Pulse width < 300 μs, duty cycle < 2%

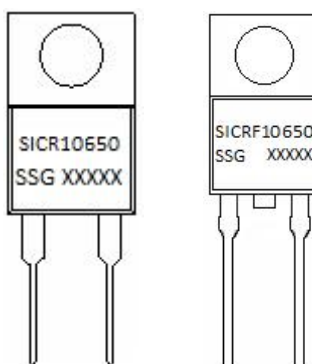
Thermal-Mechanical Specifications:

Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	T _J	-	-55 to +175	°C
Storage Temperature	T _{stg}	-	-55 to +175	°C
Typical Thermal Resistance Junction to Case	R _{θJC}	DC operation	1.36	°C/W
Approximate Weight	wt	-	1.8	g
Case Style		TO-220AC		

Tube Specification



Marking Diagram



Where XXXXX is YYWWL

- SICR = Device Type
- F = Package type
- 10 = Forward Current (10A)
- 650 = Reverse Voltage (650V)
- SSG = SSG
- YY = Year
- WW = Week
- L = Lot Number

Cautions: Molding resin
Epoxy resin UL:94V-0

Ratings and Characteristics Curves

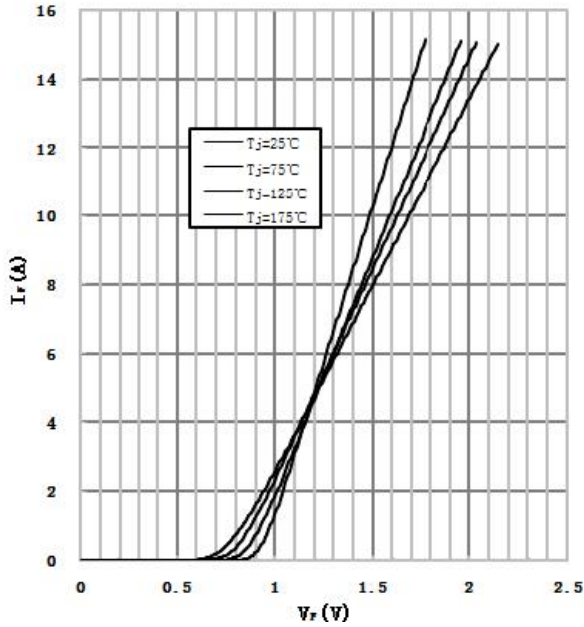


Fig.1-Typical Forward Voltage Characteristics

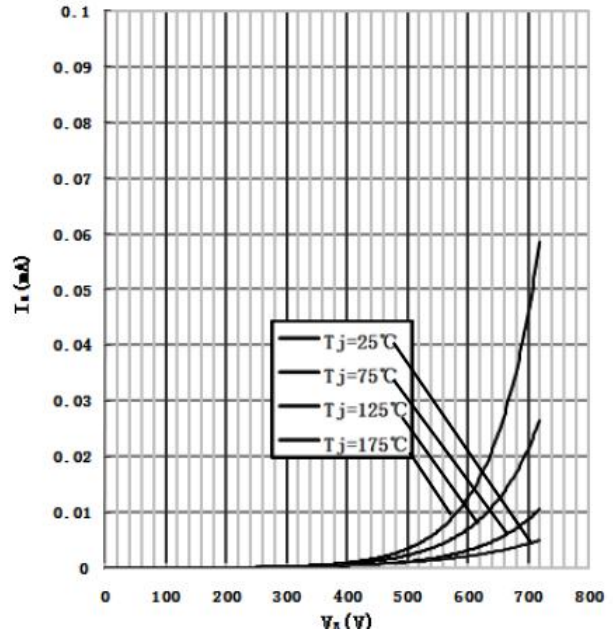


Fig.2-Typical Reverse Characteristics

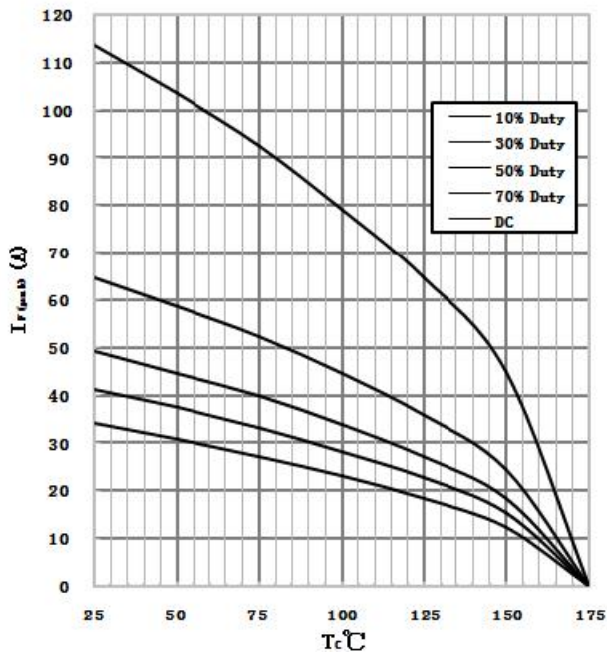


Fig.3-Forward Current Derating Curve

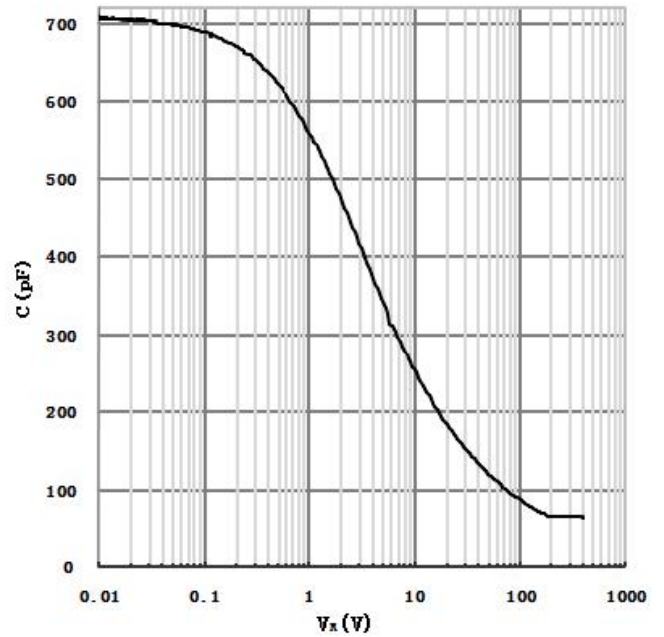
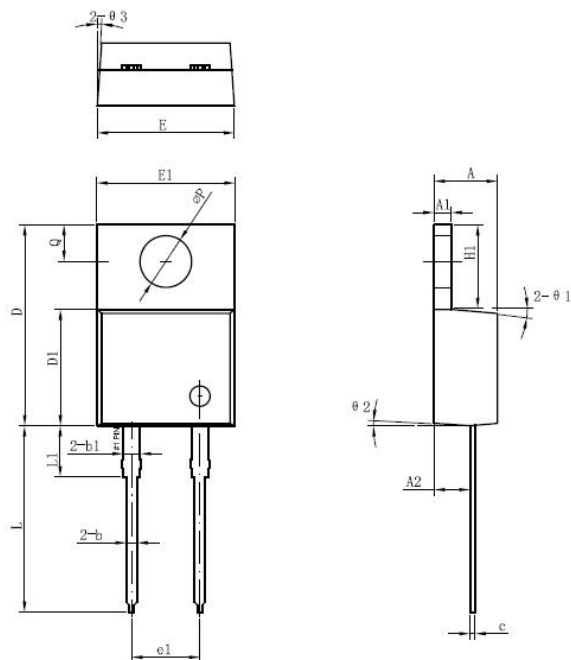


Fig.4-Typical Junction Capacitance

Mechanical Dimensions TO-220AC



Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	4.40	4.70	4.85
A1	1.17	1.27	1.37
A2	2.40	2.69	2.89
b	0.61	0.81	0.96
b1	1.17	1.27	1.37
c	0.31	0.38	0.70
D	14.64	14.94	15.75
D1	8.50	8.07	8.90
E	10.00	10.16	10.40
E1	9.98	10.18	10.38
e1	4.95	5.08	5.18
H1	6.04	6.24	6.60
L	13.00	13.86	14.08
L1	3.50	3.80	3.96
ΦP	3.74	3.84	4.04
Q	2.54	2.74	2.95
$\theta 1$		5°	
$\theta 2$		4°	
$\theta 3$		4°	

Ordering Information

Device	Package	Plating	Weight	Shipping
SICR10650	TO-220AC	Pure Sn	1.8g	50pcs / tube
SICRF10650	ITO-220AC	Pure Sn	1.8g	50pcs / tube

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

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