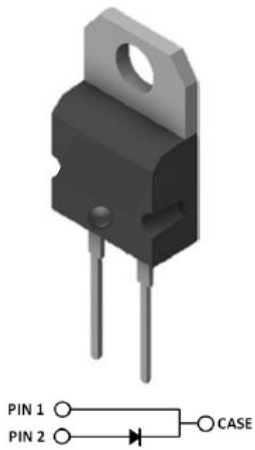


<b>Silicon Carbide Schottky Diode</b>	<b>REVERSE VOLTAGE 650 Volts FORWARD CURRENT 8 Amperes</b>
<p><b>FEATURES</b></p> <ul style="list-style-type: none"> <li>• No reverse recovery/No forward recovery</li> <li>• 650-volts Schottky Rectifier</li> <li>• High Frequency Operation</li> <li>• Temperature independent switching behavior</li> <li>• Extremely Fast Switching</li> <li>• Positive Temperature Coefficient on VF</li> </ul> <p><b>MECHANICAL DATA</b></p> <ul style="list-style-type: none"> <li>• Case: TO-220AC</li> <li>• Polarity: Cathode Band</li> </ul>	<p><b>TO-220AC</b></p> 

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.  
Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%

Characteristics	Symbol	SiC0865ST		Unit
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	650		V
RMS Reverse Voltage	$V_{RMS}$	650		V
Maximum DC blocking voltage	$V_{DC}$	650		V
Diode Forward Voltage $I_F=6A$ $T_J=25^{\circ}C$ $T_J=175^{\circ}C$	$V_F$	Typ.	Max.	V
		1.47	1.8	
		1.75	2.5	
Reverse Current $V_R=650V$ $T_J=25^{\circ}C$ $T_J=175^{\circ}C$	$I_R$	10	100	$\mu A$
		15	200	
Continuous forward current $T_C=25^{\circ}C$ $T_C=135^{\circ}C$ $T_C=150^{\circ}C$	$I_F$	25	11	A
		25	8	
		25	8	
Surge non-repetitive forward current $T_C=25^{\circ}C, t_p=10ms, \text{Half Sine-wave}$	$I_{FSM}$	56		A
Diode dv/dt ruggedness $V_R=0 \dots 480V$	dv/dt	100		V/ns
Total capacitive charge $V_R=650V, di/dt=500A/\mu s, I_F=6A, T_J=25^{\circ}C$	$Q_C$	23		nC
Total Capacitance $T_J=25^{\circ}C, f=1MHz$ $V_R=0V$ $V_R=200V$ $V_R=400V$	C	550		$\mu F$
		55		
		53		
Power dissipation $T_C=25^{\circ}C$ $T_C=110^{\circ}C$	$P_{tot}$	102		W
		45		
Thermal Resistance, Junction Case	$R_{thJC}$	1.46		$^{\circ}C/W$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +175		$^{\circ}C$

### Application

- Switch mode power supply
- Power factor correction
- Solar inverter
- Uninterruptible power supply
- High Efficiency DC/DC Converters
- Motor Drivers

**Rating and Characteristic Curves**

Fig 1. Typical forward characteristics

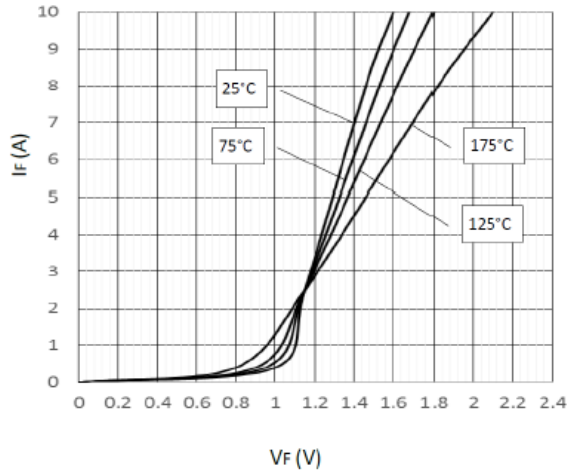


Fig 2. Diode forward current

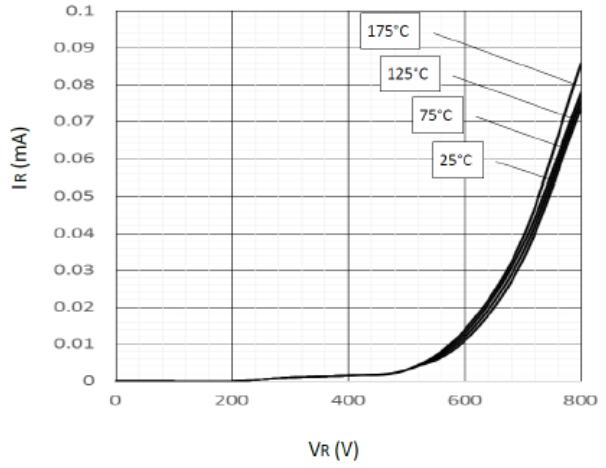


Fig 3. Current Derating

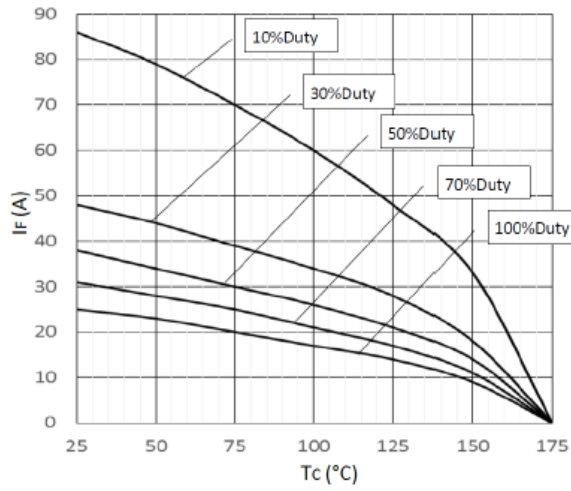
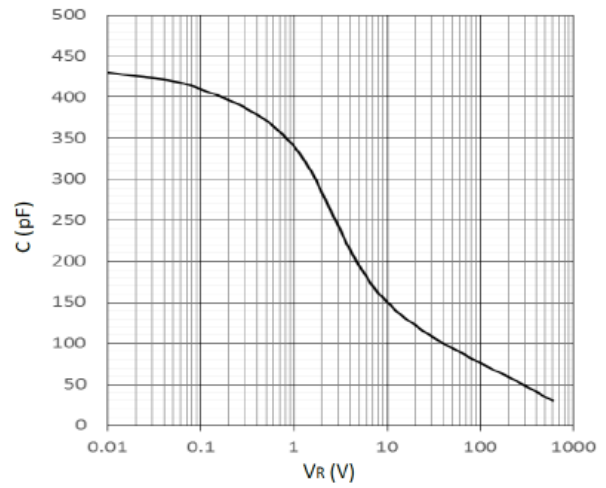
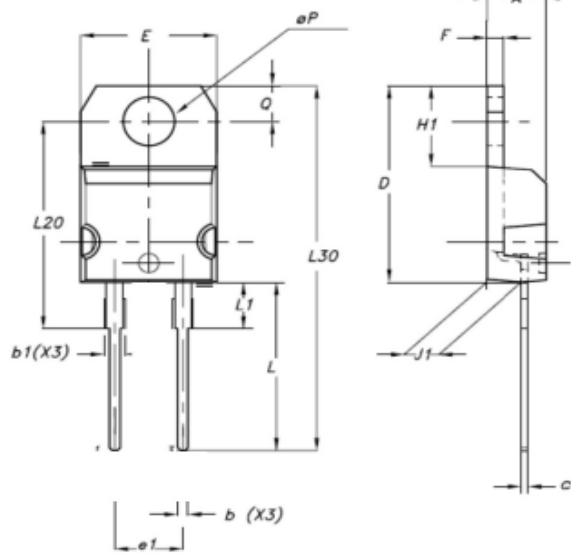


Fig 4. Typical capacitance vs. reverse voltage



Package outline



DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
b	0.61		0.88	0.024		0.034
b1	1.15		1.70	0.045		0.066
c	0.49		0.70	0.019		0.027
D	15.25		15.75	0.60		0.620
E	10		10.40	0.393		0.409
e1	4.95		5.15	0.194		0.202
F	1.23		1.32	0.048		0.052
H1	6.20		6.60	0.244		0.256
J1	2.40		2.72	0.094		0.107
L	13		14	0.511		0.551
L1	3.50		3.93	0.137		0.154
L20		16.40			0.645	
L30		28.90			1.137	
eP	3.75		3.85	0.147		0.151
Q	2.65		2.95	0.104		0.116

TO-220 Tube outline

