

KEY FEATURES

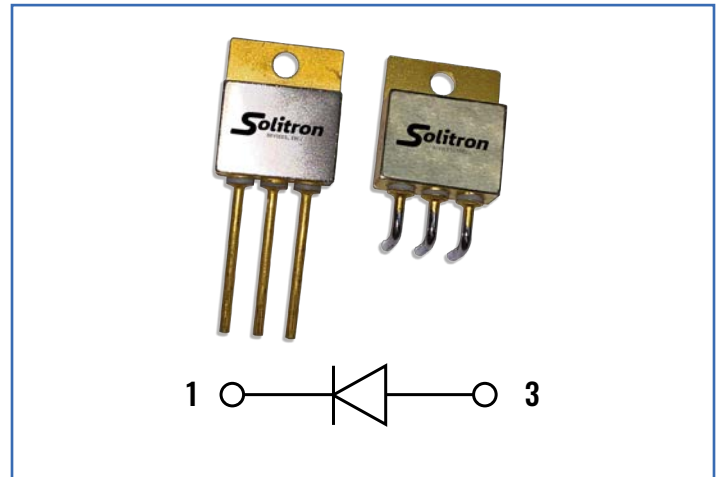
- NO REVERSE RECOVERY / NO FORWARD RECOVERY
- NEAR ZERO SWITCH LOSS
- SWITCHING BEHAVIOR INDEPENDENT OF TEMPERATURE
- 200°C OPERATING TEMPERATURE
- ISOLATED CASE
- HERMETIC PACKAGE
- TX, TXV AND SPACE LEVEL SCREENING AVAILABLE

BENEFITS

- PARALLEL DEVICES WITHOUT THERMAL RUNAWAY
- HIGHER EFFICIENCY
- SMALLER HEAT SINK
- IDEAL FOR EXTREME ENVIRONMENT APPLICATIONS

APPLICATIONS

- AEROSPACE
- HIGH EFFICIENCY CONVERTERS & MOTOR DRIVES
- POWER SUPPLIES



ORDERING GUIDE

Part Number SD11807
Description 650V Silicon Carbide Diode

ABSOLUTE MAXIMUM RATINGS ($T_c = +25^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	VALUE	TEST CONDITIONS
Max D.C. Reverse Voltage	V_R	650V	
Repetitive Peak Voltage	V_{RRM}	650V	
Surge Peak Reverse Voltage	V_{RSM}	650V	
DC Blocking Voltage	V_{DC}	650V	
DC Forward Current	$I_{F(avg)}$	50A 50A	$T_c = 25^\circ\text{C}$ $T_c = 125^\circ\text{C}$
Repetitive Peak Forward Current	I_{FRM}	46A 30A	$T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse $T_c = 125^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse
Non-Repetative Forward Surge Current	I_{FSM}	90A 70A	$T_c = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse $T_c = 125^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse
Power Dissipation	P_D	150W 180W	$T_c = 25^\circ\text{C}$ $T_c = 125^\circ\text{C}$
Maximum Junction Temperature	$T_{J(max)}$	+175°C	
Operating Temperature Range	T	-55°C to +175°C	
Storage Temperature Range	T_{STG}	-55°C to +175°C	
Lead Temperature for 10 Seconds	T_L	220°C	

ELECTRICAL SPECIFICATIONS

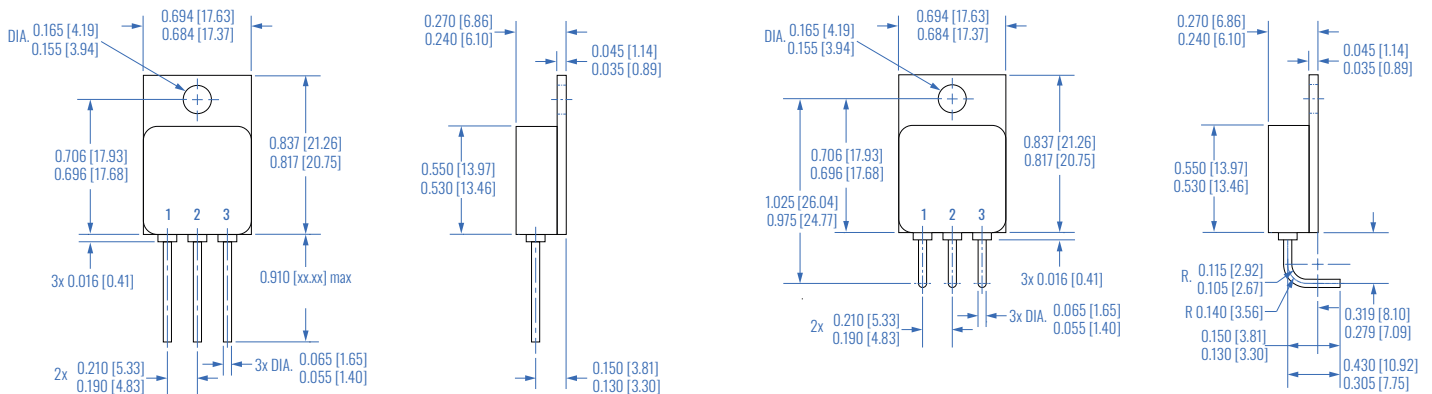
Typical @ 25°C unless otherwise noted

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Blocking Voltage	V_{DC}		650		V
Forward Voltage	V_F	$I_F = 50A, T_J = 25^\circ C$	1.5	1.8	V
		$I_F = 50A, T_J = 175^\circ C$	1.8	2.2	V
Reverse Current	I_{RM}	$V_R = 650V, T_J = 25^\circ C$	50	500	μA
		$V_R = 650V, T_J = 175^\circ C$	200	1000	μA
Total Capacitive Charge	Q_C		110		nC
Total Capacitance	C	0V, f = 1MHz	806		pF
		200V, f = 1MHz	162		
		400V, f = 1MHz	100		
		600V, f = 1MHz	95		
		800V, f = 1MHz	88		
		1000V, f = 1MHz	88		
Switching Time	T_{RR}		60		nS

THERMAL AND MECHANICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance, Junction to Case	$R_{\theta(JC)}$		1.0		$^\circ C/W$
Weight	W	6.3		6.8	g
Mounting Torque	M_S	1.2		1.76	N-m

PACKAGE OUTLINE - TO-258-3L



PIN DESCRIPTION

Pin	Description
1	Cathode
3	Anode

SCHEMATIC



TYPICAL PERFORMANCE CURVES

