

KEY FEATURES

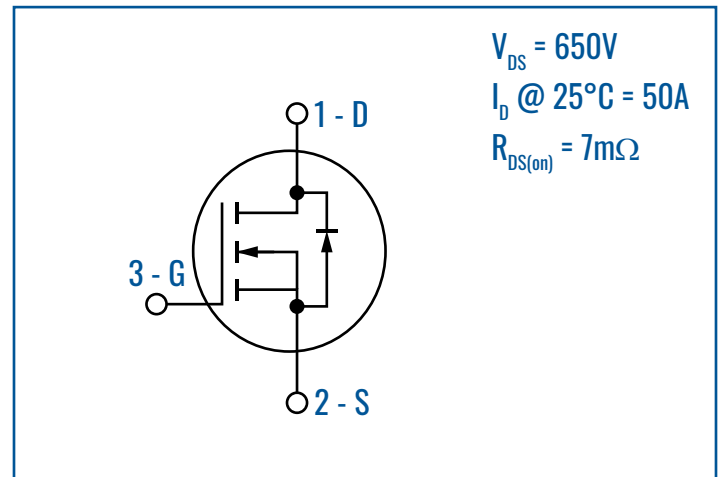
- $I_D = 50A$
- $R_{DS(on)} = 7m\Omega$
- ISOLATED BACKSIDE
- TO-258 HERMETICALLY SEALED PACKAGE
- MIL-PRF-19500 SCREENING AVAILABLE

BENEFITS

- PARALLEL DEVICES WITHOUT THERMAL RUNAWAY
- HIGHER SYSTEM EFFECIENCY
- SMALLER HEAT SINK
- IDEAL FOR EXTERNAL ENVIROMENT APPLICATIONS
- ROBOTICS AND SERVO CONTROLS

APPLICATIONS

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



ORDERING GUIDE

Part Number	SD11702
Description	650V SiC N-Channel Power MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_c = 25^\circ C$)

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VALUE	UNIT
$V_{DS,max}$	Drain-Source Voltage	$V_{GS} = 0V, I_D = 100\mu A$	650	V
$V_{GS,max}$	Gate-Source Voltage (dynamic)	Absolute maximum values	-20/+20	V
I_D	Continuous Drain Current	$V_{GS} = 15V$	50	A
$I_{D,pulse}$	Pulsed Drain Current	Pulse Width t_p Limited by T_{jmax}	200	A
P_D	Maximum Power Dissipation		220	W
T_j, T_{STG}	Junction Temperature, Operating and Storage		-55 to +175	$^\circ C$

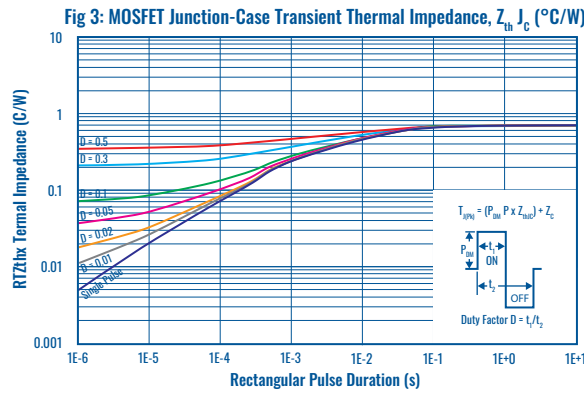
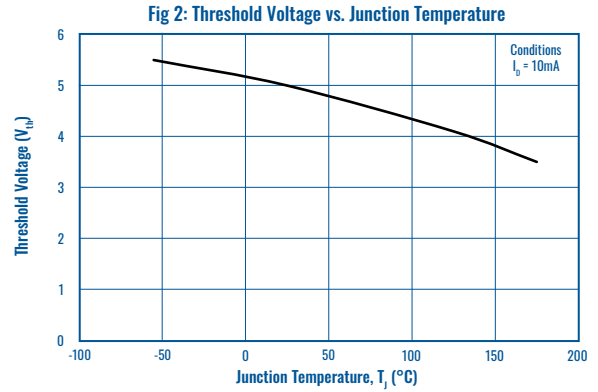
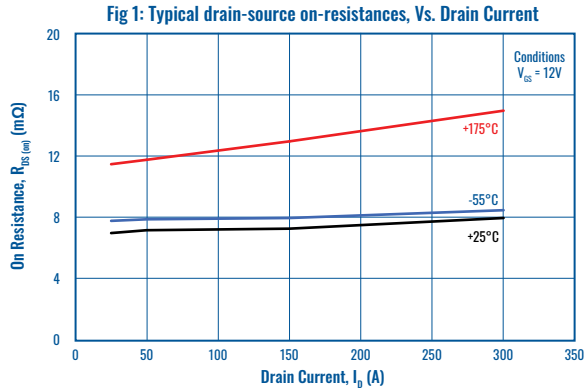
ELECTRICAL CHARACTERISTICS (T_c = 25°C)

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} < 0V, I _D = 1mA	650			V	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = 5V, I _{DS} = 10mA	4	4.7	6	V	
I _{DSS}	Off -State Drain Current	V _{GS} = 0V, V _{DS} = 650V		7	600	μA	
I _{GSS}	Gate-Source Leakage Current	V _{GS} = -20V/+20V, V _{DS} = 0V		5	±20	μA	
R _{DS(on)}	Drain-Source On-state Resistance	V _{GS} = 12V, I _D = 25A, T _J = 25°C		6.7	9	mΩ	
		V _{GS} = 12V, I _D = 25A, T _J = 175°C		11			
RG _(int)	Internal Gate Resistance	f = 1MHz, open drain		0.8	1.5	Ω	
t _{d(on)}	Turn-on delay time	V _{DS} = 400V, I _D = 50A, V _{GS} = -5V to +15V, R _{gext(on)} = 1.5Ω, R _{gext(off)} = 5Ω, Inductive Load, T _J = 25°C		36		nS	
t _r	Rise Time			46		nS	
t _{d(off)}	Turn-off delay time			72		nS	
t _f	Fall Time			14		nS	
E _(on)	Turn-On Energy				925		μJ
E _(off)	Turn-Off Energy				83		μJ
E _(total)	Total Switching Energy			1008		μJ	
C _{DSS}	Output Capacitance	V _{GS} = 0V, V _{DS} = 100V, f = 100kHz		1190		pF	
C _{rSS}	Reverse Transfer Capacitance			11.3		pF	
C _{iSS}	Input Capacitance			8360		pF	

BODY DIODE RATINGS AND CHARACTERISTICS (T_c = 25°C)

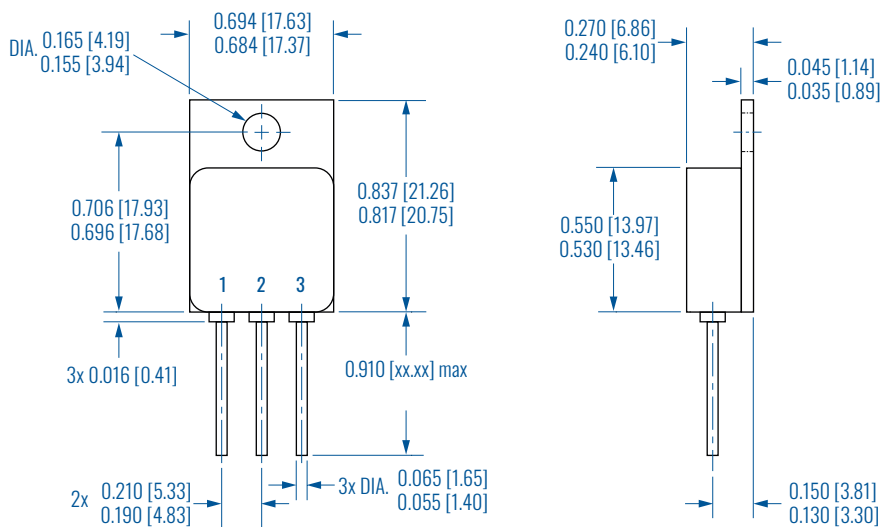
SYMBOL	CHARACTERISTIC	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
V _{SD}	Diode Forward Voltage	V _{GS} = 0V, I _{DS} = 50A, T _J = +25°C		1.3	1.5	V
		V _{GS} = 0V, I _{DS} = 50A, T _J = +175°C		1.4		V
t _{rr}	Reverse Recovery Time	V _{GS} = 0V, I _{DS} = 50A, V _R = 400A, di/dt = 1400A/μS, T _J = +25°C		53		nS
Q _{rr}	Reverse Recovery Charge			856		nC
I _{rrm}	Peak Reverse Recovery Current			50		A

CHARACTERISTICS



OUTLINE DIMENSIONS

Straight legs



All Dimensions are in Inches (mm)