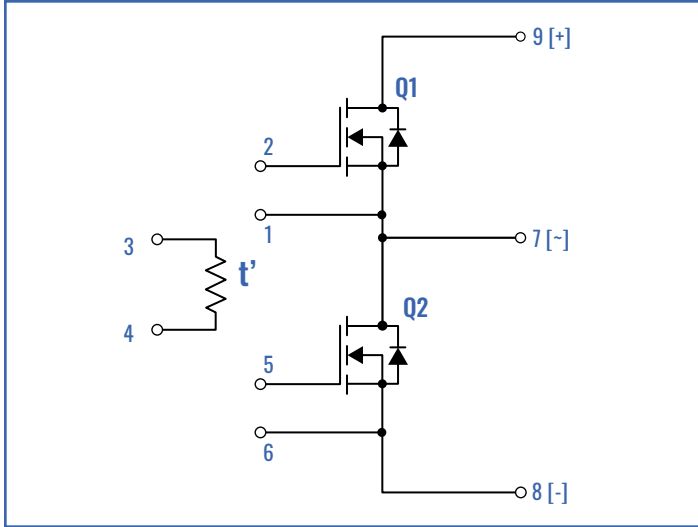


$$V_{DS} = 650V$$

$$R_{DSon} = 7m\Omega$$

$$I_D = 50A @ T_c = 25^\circ C$$



PIN CONNECTIONS

PIN	DESCRIPTION
1	S1
2	G1
3	Temp. Monitoring
4	Temp. Monitoring
5	G2
6	S2
7	AC
8	N
9	P

FEATURES & BENEFITS

- SUPERIOR SYSTEM EFFICIENCY DUE TO LOW SWITCHING AND CONDUCTIONS LOSSES OF SiC
- OUTSTANDING POWER CONVERSION EFFICIENCY AT HIGH FREQUENCY OPERATION
- HIGH SPEED SWITCHING W/ LOW CAPACITANCE
- REDUCED PARASITIC INDUCTANCE AND CAPACITANCE
- REAL KELVIN SOURCE CONNECTION FOR STABLE GATE DRIVE
- ISOLATED BACKSIDE FOR DIRECT MOUNT TO HEATSINK
- ALN SUBSTRATE AND CUMO BASEPLATE FOR THERMAL CONDUCTIVITY
- HIGH JUNCTION TEMPERATURE OPERATION
- LOW JUNCTION TO CASE THERMAL RESISTANCE
- REDUCED THERMAL REQUIREMENTS AND SYSTEM COST
- INTEGRATED NTC TEMPERATURE SENSOR
- RUGGED MOUNTING DUE TO INTEGRATED MOUNTING BUSHINGS
- LOW PROFILE COMPACT PACKAGE



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

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		249	W
T_j, T_{STG}	Junction Temperature, Operating and Storage		-55 to +175	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

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	$V_{DS} = 5V, I_{GS} = 10mA$	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	$V_{GS} = 12V, I_D = 25A, T_j = 25^\circ\text{C}$		6.7	9	$m\Omega$	
		$V_{GS} = 12V, I_D = 25A, T_j = 175^\circ\text{C}$		11			
$R_{G(int)}$	Internal Gate Resistance	$f = 1MHz, \text{open drain}$		0.8	1.5	Ω	
$t_{d(on)}$	Turn-on delay time	$V_{DS} = 400V, I_D = 50A, V_{GS} = -5V \text{ to } +15V, R_{gext(on)} = 1.5\Omega, R_{gext(off)} = 5\Omega, \text{Inductive Load}, T_j = 25^\circ\text{C}$		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_{oss}	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 ($T_c = 25^\circ\text{C}$)

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{SD}	Diode Forward Voltage	$V_{GS} = 0V, I_{DS} = 50A, T_j = +25^\circ\text{C}$		1.3	1.5	V
		$V_{GS} = 0V, I_{DS} = 50A, T_j = +175^\circ\text{C}$		1.4		V
t_{rr}	Reverse Recovery Time	$V_{GS} = 0V, I_{DS} = 50A, V_R = 400A, di/dt = 1400A/\mu S, T_j = +25^\circ\text{C}$		53		nS
Q_{rr}	Reverse Recovery Charge			856		nC
I_{rrm}	Peak Reverse Recovery Current			50		A

CHARACTERISTICS

Fig 1: Typical drain-source on-resistances, Vs. Drain Current

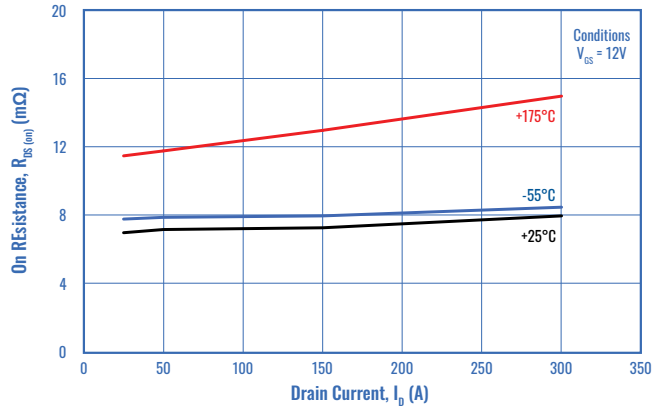


Fig 2: Threshold Voltage vs. Junction Temperature

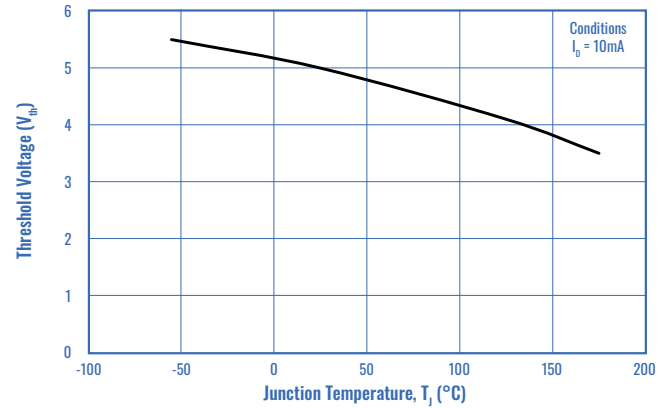


Fig 3: MOSFET Junction-Case Transient Thermal Impedance, $Z_{th Jc}$ ($^{\circ}C/W$)

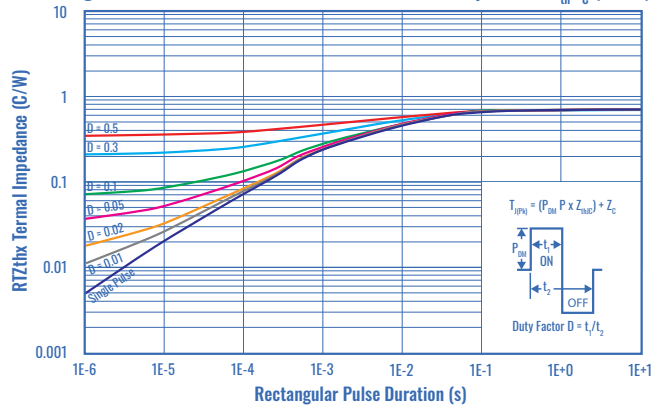
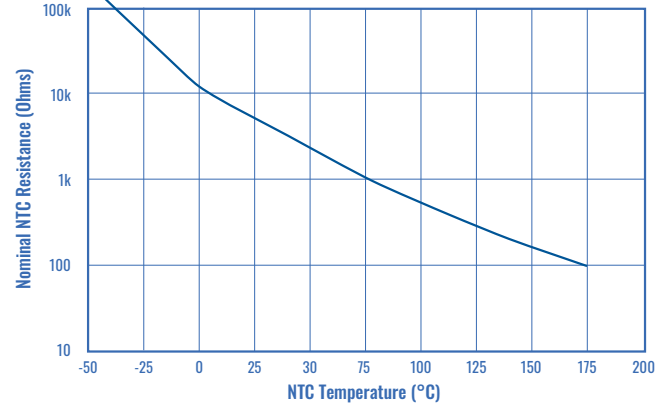
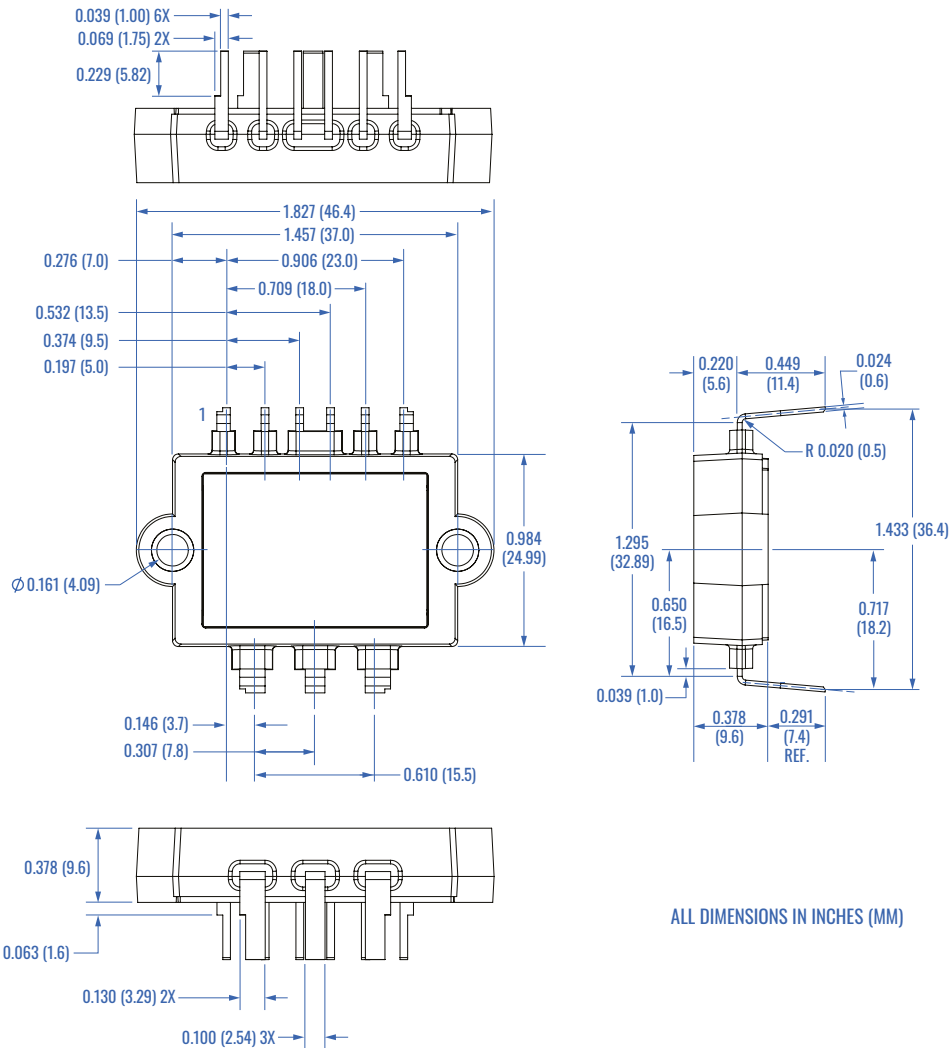


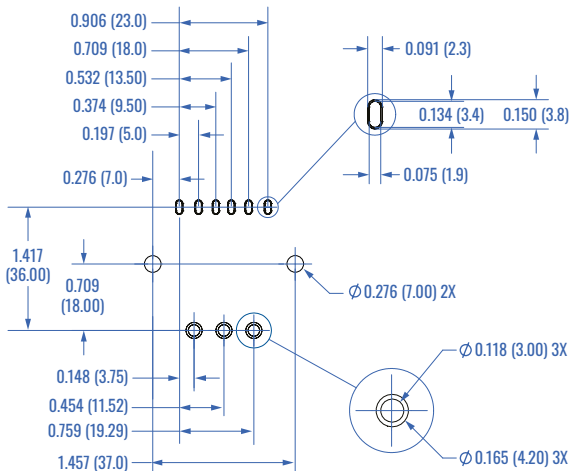
Fig 4: Nominal NTC Resistance Vs. NTC Temperature



PACKAGE OUTLINE - dimensions in inches (mm)



PCB HOLE PATTERN



ALTERNATE PCB HOLE PATTERN

