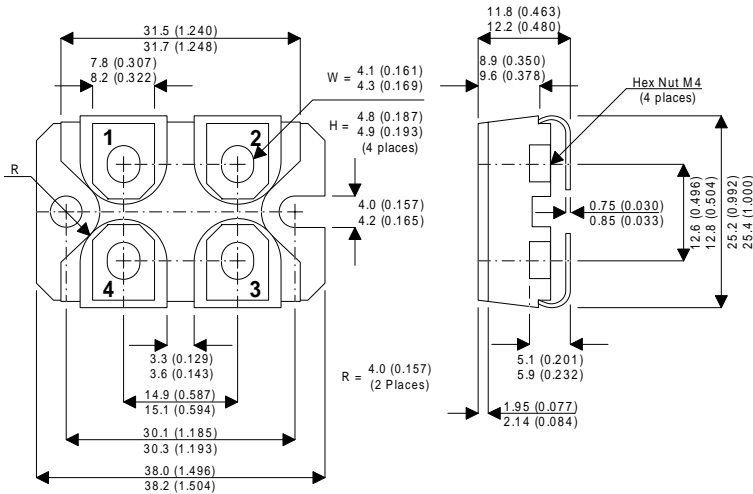


SOT-227 Package Outline.
Dimensions in mm (inches)



4TH GENERATION MOSFET

**N-CHANNEL
ENHANCEMENT MODE
HIGH VOLTAGE
ISOLATED
POWER MOSFETS**

**V_{DSS} 400V
 $I_{D(cont)}$ 86A
 $R_{DS(on)}$ 0.042Ω**

Terminal 1 Source* **Terminal 2** Drain
Terminal 3 Gate **Terminal 4** Source*

* Source terminals are shorted internally. Current handling capability is equal for either Source terminal.

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{DSS}	Drain – Source Voltage	400	V
I_D	Continuous Drain Current	86	A
I_{DM}, I_{LM}	Pulsed Drain Current ¹ and Inductive Current Clamped	344	A
V_{GS}	Gate – Source Voltage	±30	V
P_D	Total Power Dissipation @ $T_{case} = 25^{\circ}C$	690	W
	Linear Derating Factor	5.52	W / °C
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-40 to 150	°C
T_L	Lead Temperature : 0.063" from Case for 10 Sec.	300	

STATIC ELECTRICAL RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	400			V
$I_{D(ON)}$	On State Drain Current ²	$V_{DS} > I_{D(ON)} \times R_{DS(ON)}$ Max $V_{GS} = 10V$	86			A
$R_{DS(ON)}$	Drain – Source On State Resistance ²	$V_{GS} = 10V, I_D = 0.5 I_D [Cont.]$			0.042	Ω
I_{DSS}	Zero Gate Voltage Drain Current ($V_{GS} = 0V$)	$V_{DS} = V_{DSS}$			250	μA
		$V_{DS} = 0.8V_{DSS}, T_C = 125^{\circ}C$			1000	
I_{GSS}	Gate – Source Leakage Current	$V_{GS} = \pm 30V, V_{DS} = 0V$			±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 5.0mA$	2		4	V

1) Repetitive Rating: Pulse Width limited by maximum junction temperature.

2) Pulse Test: Pulse Width < 380μS , Duty Cycle < 2%

DYNAMIC CHARACTERISTICS

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
C_{iss}	Input Capacitance	$V_{GS} = 0V$		11140	14000	pF
C_{oss}	Output Capacitance	$V_{DS} = 25V$		2600	3640	
C_{rss}	Reverse Transfer Capacitance	$f = 1MHz$		960	1440	
Q_g	Total Gate Charge ³	$V_{GS} = 10V$		507	760	nC
Q_{gs}	Gate – Source Charge	$V_{DD} = 0.5 V_{DSS}$		70	105	
Q_{gd}	Gate – Drain (“Miller”) Charge	$I_D = I_D [Cont.] @ 25^\circ C$		234	350	
$t_{d(on)}$	Turn-on Delay Time	$V_{GS} = 15V$		21	40	ns
t_r	Rise Time	$V_{DD} = 0.5 V_{DSS}$		41	80	
$t_{d(off)}$	Turn-off Delay Time	$I_D = I_D [Cont.] @ 25^\circ C$		62	95	
t_f	Fall Time	$R_G = 0.6\Omega$		14	30	

SOURCE – DRAIN DIODE RATINGS AND CHARACTERISTICS

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current (Body Diode)				86	A
I_{SM}	Pulsed Source Current ¹ (Body Diode)				344	
V_{SD}	Diode Forward Voltage ²	$V_{GS} = 0V, I_S = -I_D [Cont.]$			1.8	V
t_{rr}	Reverse Recovery Time	$I_S = -I_D [Cont.]$	270	535	1070	ns
Q_{rr}	Reverse Recovery Charge	$di_S / dt = 100A/\mu s$	6	13	26	μC

PACKAGE CHARACTERISTICS

	Characteristic	Min.	Typ.	Max.	Unit
L_D	Internal Drain Inductance (Measured From Drain Terminal to Centre of Die)		3		nH
L_S	Internal Source Inductance (Measured From Source Terminals to Source Bond Pads)		5		
$V_{Isolation}$	RMS Voltage (50–60 Hz Sinusoidal Waveform From Terminals to Mounting Base for 1 Min.)	2500			V
$C_{Isolation}$	Drain-to-Mounting Base Capacitance		70		pF
Torque	Maximum Torque for Device Mounting Screws and Electrical Terminations			13	in-lbs

THERMAL CHARACTERISTICS

	Characteristic	Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Junction to Case			0.18	$^\circ C/W$
$R_{\theta CS}$	Case to Sink (Use High Efficiency Thermal Joint Compound and Planar Heat Sink Surface.)	0.05			

1) Repetitive Rating: Pulse Width limited by maximum junction temperature.

2) Pulse Test: Pulse Width < 380 μs , Duty Cycle < 2%

3) See MIL–STD–750 Method 3471



CAUTION — Electrostatic Sensitive Devices. Anti-Static Procedures Must Be Followed.