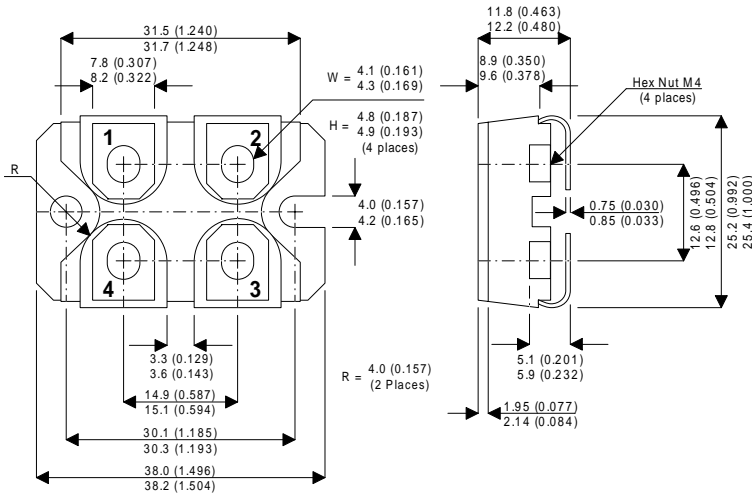


SOT-227 Package Outline.
Dimensions in mm (inches)



4TH GENERATION MOSFET

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

V_{DSS} 500V
 $I_{D(cont)}$ 71A
 $R_{DS(on)}$ 0.060 Ω

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°C unless otherwise stated)

V_{DSS}	Drain – Source Voltage	500	V
I_D	Continuous Drain Current	71	A
I_{DM} , I_{LM}	Pulsed Drain Current ¹ and Inductive Current Clamped	284	A
V_{GS}	Gate – Source Voltage	±30	V
P_D	Total Power Dissipation @ T _{case} = 25°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°C unless otherwise stated)

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0V$, $I_D = 250\mu A$	500			V
$I_{D(ON)}$	On State Drain Current ²	$V_{DS} > I_{D(ON)} \times R_{DS(ON)}$ Max $V_{GS} = 10V$	71			A
$R_{DS(ON)}$	Drain – Source On State Resistance ²	$V_{GS} = 10V$, $I_D = 0.5 I_D [Cont.]$			0.060	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°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 < 380 μS , Duty Cycle < 2%

DYNAMIC CHARACTERISTICS

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
C_{iss}	Input Capacitance	$V_{GS} = 0V$		11640	14000	pF
C_{oss}	Output Capacitance	$V_{DS} = 25V$		2230	3120	
C_{rss}	Reverse Transfer Capacitance	$f = 1MHz$		800	1200	
Q_g	Total Gate Charge ³	$V_{GS} = 10V$		475	710	nC
Q_{gs}	Gate – Source Charge	$V_{DD} = 0.5 V_{DSS}$		68	100	
Q_{gd}	Gate – Drain (“Miller”) Charge	$I_D = I_D [Cont.] @ 25^\circ C$		246	370	
$t_{d(on)}$	Turn-on Delay Time	$V_{GS} = 15V$		22	45	ns
t_r	Rise Time	$V_{DD} = 0.5 V_{DSS}$		30	60	
$t_{d(off)}$	Turn-off Delay Time	$I_D = I_D [Cont.] @ 25^\circ C$		66	100	
t_f	Fall Time	$R_G = 0.6\Omega$		13	25	

SOURCE – DRAIN DIODE RATINGS AND CHARACTERISTICS

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current (Body Diode)				71	A
I_{SM}	Pulsed Source Current ¹ (Body Diode)				284	
V_{SD}	Diode Forward Voltage ²	$V_{GS} = 0V, I_S = -I_D [Cont.]$			1.8	V
t_{rr}	Reverse Recovery Time	$I_S = -I_D [Cont.]$	325	650	1300	ns
Q_{rr}	Reverse Recovery Charge	$di_S / dt = 100A/\mu s$	10	19	38	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.