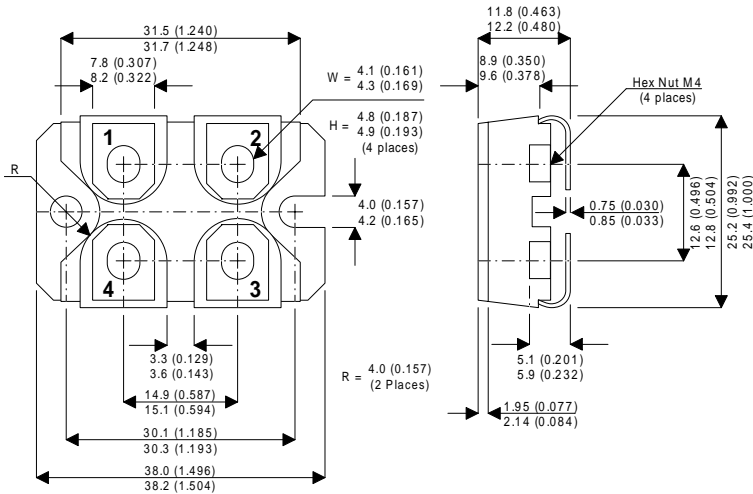


4TH GENERATION MOSFET

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



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

V_{DSS} 600V
I_{D(cont)} 57A
R_{DS(on)} 0.090Ω

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	600	V
I _D	Continuous Drain Current	57	A
I _{DM} , I _{LM}	Pulsed Drain Current ¹ and Inductive Current Clamped	228	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	-25 to 125	°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 = 250μA	600			V
I _{D(ON)}	On State Drain Current ²	V _{DS} > I _{D(ON)} × R _{DS(ON)} Max V _{GS} = 10V	57			A
R _{DS(ON)}	Drain – Source On State Resistance ²	V _{GS} = 10V, I _D = 0.5 I _D [Cont.]			0.090	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} = ±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	$V_{GS} = 0V$		11670	14000	pF
C_{oss}	Output Capacitance	$V_{DS} = 25V$		1810	2530	
C_{rss}	Reverse Transfer Capacitance	$f = 1MHz$		545	870	
Q_g	Total Gate Charge ³	$V_{GS} = 10V$		446	670	nC
Q_{gs}	Gate – Source Charge	$V_{DD} = 0.5 V_{DSS}$		64	95	
Q_{gd}	Gate – Drain (“Miller”) Charge	$I_D = I_D [Cont.] @ 25^\circ C$		208	315	
$t_{d(on)}$	Turn-on Delay Time	$V_{GS} = 15V$		22	45	ns
t_r	Rise Time	$V_{DD} = 0.5 V_{DSS}$		24	50	
$t_{d(off)}$	Turn-off Delay Time	$I_D = I_D [Cont.] @ 25^\circ C$		65	95	
t_f	Fall Time	$R_G = 0.6\Omega$		12	25	

SOURCE – DRAIN DIODE RATINGS AND CHARACTERISTICS

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current (Body Diode)				57	A
I_{SM}	Pulsed Source Current ¹ (Body Diode)				228	
V_{SD}	Diode Forward Voltage ²	$V_{GS} = 0V, I_S = -I_D [Cont.]$			1.8	V
t_{rr}	Reverse Recovery Time	$I_S = -I_D [Cont.]$	400	800	1600	ns
Q_{rr}	Reverse Recovery Charge	$di_S / dt = 100A/\mu s$	13	26	50	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.