SEME LAB

MECHANICAL DATA
Dimensions in mm (inches)

N–CHANNEL POWER MOSFET

V_{DSS}	**200V**
$I_{D(cont)}$	**27.4A**
$R_{DS(on)}$	**0.100Ω**
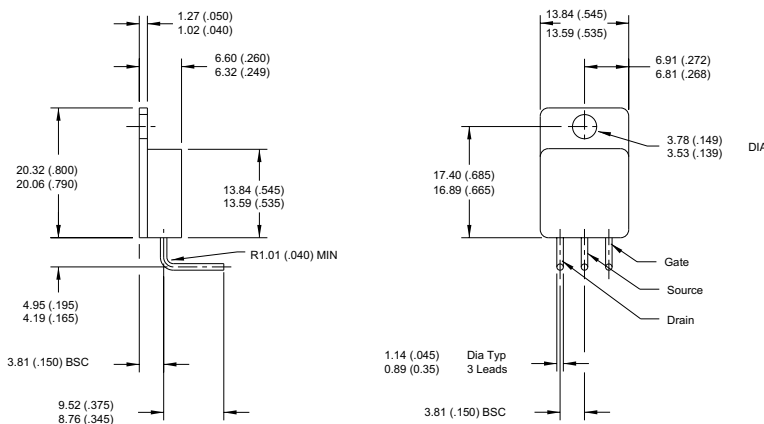
FEATURES

- **N–CHANNEL MOSFET**
- **HIGH VOLTAGE**
- **INTEGRAL PROTECTION DIODE**
- **HERMETIC ISOLATED TO-254 PAC**
- **CERAMIC SURFACE MOUNT PACK OPTION**

1.27 (.050)
1.02 (.040)

6.60 (.260)
6.32 (.249)

20.32 (.800)
20.06 (.790)

13.84 (.545)
13.59 (.535)

R1.01 (.040) MIN

4.95 (.195)
4.19 (.165)

3.81 (.150) BSC

9.52 (.375)
8.76 (.345)

13.84 (.545)
13.59 (.535)

6.91 (.272)
6.81 (.268)

3.78 (.149)
3.53 (.139)   DIA

17.40 (.685)
16.89 (.665)

Gate
Source
Drain

1.14 (.045)
0.89 (0.35)

Dia Typ
3 Leads

3.81 (.150) BSC

TO–254 Metal Package

Pin 1 – Drain   Pin 2 – Source   Pin 3 – Gate

ABSOLUTE MAXIMUM RATINGS (T$_C$ = 25°C unless otherwise stated)

V_{GS}	Gate – Source Voltage		±20V
I_D	Continuous Drain Current	@ V_{GS} = 10V , T_C = 25°C	27.4A
		@ V_{GS} = 10V , T_C = 100°C	17A
I_{DM}	Pulsed Drain Current		110A
P_D	Max. Power Dissipation	@ T_C = 25°C	150W
	Linear Derating Factor		1.2W / °C
I_L	Avalanche Current , Clamped [1]		27.4A
dv / dt	Peak Diode Recovery [2]		5.5V / ns
$R_{\theta JC}$	Thermal Resistance Junction – Case		0.83°C / W
$R_{\theta JA}$	Thermal Resistance Junction – Ambient		48°C / W
$R_{\theta CS}$	Thermal Resistance Case – Sink		0.21°C / W typ.
T_J , T_{STG}	Operating Junction and Storage Temperature Range		–55 to 150°C
T_L	Lead Temperature (1.6mm from case for 10s)		300°C

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max
STATIC ELECTRICAL RATINGS						
BV_{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 1mA$	200		
$\dfrac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1mA$			0.28	
$R_{DS(on)}$	Static Drain – Source On–State Resistance [2]	$V_{GS} = 10V$	$I_D = 17A$			0.100
		$V_{GS} = 10V$	$I_D = 27.4A$			0.105
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 250\mu A$	2		4
g_{fs}	Forward Transconductance [2]	$V_{DS} \geq 15V$	$I_{DS} = 27.4A$	9		
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = 0.8BV_{DSS}$			25
			$T_J = 125°C$			250
I_{GSS}	Forward Gate – Source Leakage	$V_{GS} = 20V$				100
I_{GSS}	Reverse Gate – Source Leakage	$V_{GS} = -20V$				−100
DYNAMIC CHARACTERISTICS						
C_{iss}	Input Capacitance	$V_{GS} = 0$ $V_{DS} = 25V$ $f = 1MHz$			3500	
C_{oss}	Output Capacitance				700	
C_{rss}	Reverse Transfer Capacitance				110	
C_{DC}	Drain – Case Capacitance				12	
Q_g	Total Gate Charge	$V_{GS} = 10V$ $I_D = 27.4A$ $V_{DS} = 0.5BV_{DSS}$		55		115
Q_{gs}	Gate – Source Charge			8		22
Q_{gd}	Gate – Drain ("Miller") Charge			30		60
$t_{d(on)}$	Turn– On Delay Time	$V_{DD} = 100V$ $I_D = 27.4A$ $R_G = 2.35\Omega$				35
t_r	Rise Time					190
$t_{d(off)}$	Turn–Off Delay Time					170
t_f	Fall Time					130
SOURCE – DRAIN DIODE CHARACTERISTICS						
I_S	Continuous Source Current					27.4
I_{SM}	Pulse Source Current [1]					110
V_{SD}	Diode Forward Voltage [2]	$I_S = 27.4A$ $V_{GS} = 0$	$T_J = 25°C$			1.9
t_{rr}	Reverse Recovery Time [2]	$I_F = 27.4A$	$T_J = 25°C$			950
Q_{rr}	Reverse Recovery Charge [2]	$d_i / d_t \leq 100A/\mu s$	$V_{DD} \leq 50V$			9.0
t_{on}	Forward Turn–On Time				Negligible	
PACKAGE CHARACTERISTICS						
L_D	Internal Drain Inductance Measured from 6mm down drain lead to centre of die				8.7	
L_S	Internal Source Inductance Measured from 6mm down source lead to source bond pad				8.7	