SEME LAB

2N7086

MECHANICAL DATA
Dimensions in mm(inches)

10.41 (0.410)
10.67 (0.420)

4.83 (0.190)
5.08 (0.200)

0.89 (0.035)
1.14 (0.045)

3.56 (0.140) Dia.
3.81 (0.150)

16.38 (0.645)
16.89 (0.665)

13.38 (0.527)
13.64 (0.537)

10.41 (0.410)
10.92 (0.430)

12.07 (0.500)
19.05 (0.750)

1 2 3

2.54 (0.100)
BSC

0.64 (0.025) Dia.
0.89 (0.035)

3.05 (0.120)
BSC
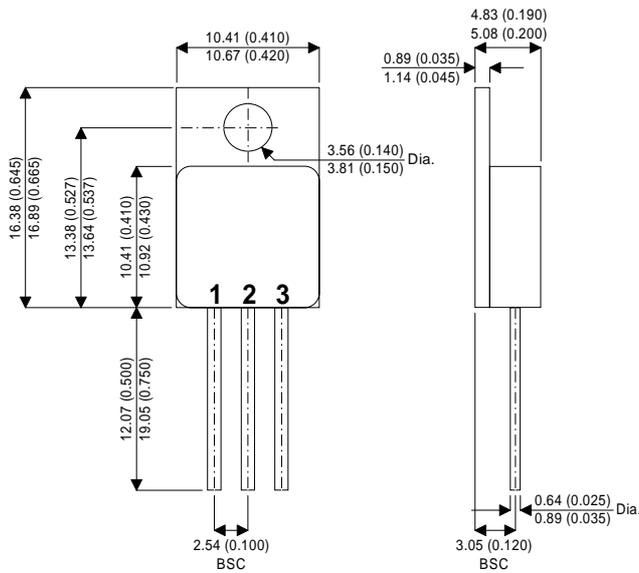
TO–257AB Metal Package

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

N–CHANNEL ENHANCEMENT MODE TRANSISTOR

$V_{(BR)DSS}$	**200V**
$I_{D(A)}$	**14A**
$R_{DS(on)}$	**0.16Ω**

FEATURES

- **TO257AB HERMETIC PACKAGE FOR HIGH RELIABILITY APPLICATIONS**
- **SCREENING OPTIONS AVAILBLE**
- **SIMPLE DRIVE REQUIREMENTS**

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{DS}	Drain – Source Voltage		200V
V_{GS}	Gate – Source Voltage		±20V
I_D	Continuous Drain Current	T_C = 25°C	14A
		T_C = 100°C	8.5A
I_{DM}	Pulsed Drain Current [1]		56A
P_D	Power Dissipation	T_C = 25°C	60W
		T_C = 100°C	23W
T_J , T_{stg}	Operating and Storage Temperature Range		−55 to 150°C
T_L	Lead Temperature ($^1/_{16}$" from case for 10 sec.)		300°C

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS							
$BV_{(BR)DSS}$	Drain–Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 250\mu A$	200			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 250\mu A$	2		4	V
I_{GSS}	Gate – Body Leakage	$V_{DS} = 0$	$V_{GS} = \pm 20V$			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 160V$				25	μA
		$V_{GS} = 0$	$T_J = 125°C$			250	
$I_{D(on)}$	On–State Drain Current[1]	$V_{DS} = 10V$	$V_{GS} = 10V$	14			A
$R_{DS(on)}$	Static Drain – Source On–State Resistance [1]	$V_{GS} = 10V$			0.14	0.16	Ω
		$I_D = 8.5A$	$T_J = 125°C$		0.25	0.30	
g_{fs}	Forward Transconductance[1]	$V_{DS} = 15V$	$I_{DS} = 8.5A$	5.0			S
DYNAMIC CHARACTERISTICS							
C_{iss}	Input Capacitance	$V_{GS} = 0$			1550		pF
C_{oss}	Output Capacitance	$V_{DS} = 25V$			500		
C_{rss}	Reverse Transfer Capacitance	$f = 1MHz$			220		
Q_g	Total Gate Charge[2]	$V_{DS} = 0.5 \times V_{(BR)DSS}$		30	44	77	nC
Q_{gs}	Gate Source Charge[2]	$V_{GS} = 10V$	$I_D = 14A$	4.6	10	15	
Q_{gd}	Gate Drain Charge[2]			13	26	35	
$t_{d(on)}$	Turn–On Delay Time[2]	$V_{DD} = 100V$	$I_D = 14A$		10	30	ns
t_r	Rise Time[2]	$V_{GEN} = 10V$			60	100	
$t_{d(off)}$	Turn–Off Delay Time[2]	$R_L = 7.1\Omega$			30	80	
t_f	Fall Time[2]	$R_G = 4.7\Omega$			40	95	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I_S	Continuous Current					114	A
I_{SM}	Pulse Current [3]					56	
V_{SD}	Forward Voltage	$I_F = I_S$	$V_{GS} = 0$			2.0	V
t_{rr}	Reverse Recovery Time	$I_F = I_S$			150	650	ns
Q_{rr}	Reverse Recovery Charge	$dI_F/dt = 100A/\mu s$			0.5		μC

[1]Pulse test : Pulse Width < 300μs ,Duty Cycle < 2%
[2]Independent of Operating Temperature
[3]Pulse width Limited by maximum Junction Temperature

THERMAL RESISTANCECHARACTERISTICS

Parameter		Min.	Typ.	Max.	Unit
R_{thJC}	Thermal resistance Junction-Case			2.1	
R_{thJA}	Thermal resistance Junction-ambient			80	K/W
R_{thCS}	Thermal resistance Junction-ambient		1.0		