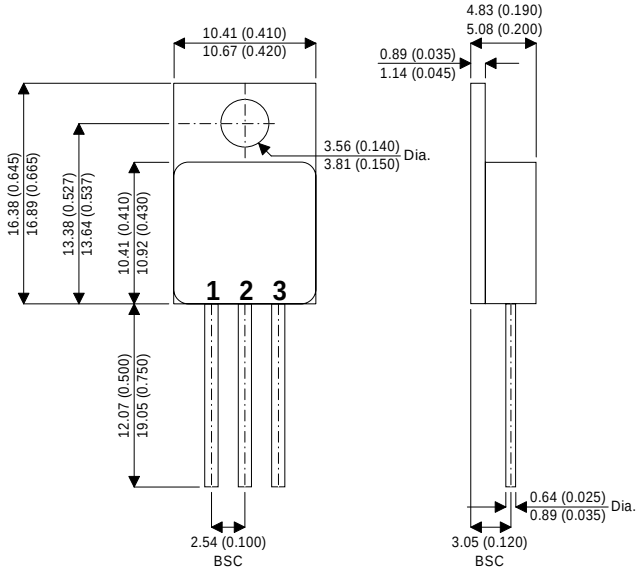
2N7086

MECHANICAL DATA
Dimensions in mm(inches)



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

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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 = 250µA	200			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}	I_D = 250µA	2		4	V
I_{GSS}	Gate – Body Leakage	V_{DS} = 0	V_{GS} = ±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 x $V_{(BR)DSS}$		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 = 7.1Ω			30	80	
t_f	Fall Time[2]	R_G = 4.7Ω			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/µs			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		