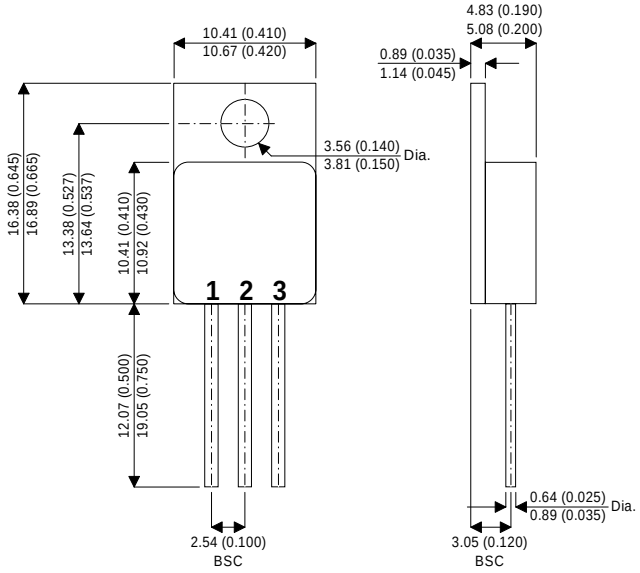
2N7085

MECHANICAL DATA
Dimensions in mm(inches)



TO–257AB Metal Package

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

N–CHANNEL ENHANCEMENT MODE TRANSISTOR

$V_{(BR)DSS}$	100V
$I_{D(A)}$	20A
$R_{DS(on)}$	0.075Ω

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		100V
V_{GS}	Gate – Source Voltage		±20V
I_D	Continuous Drain Current (T_J = 150°C)	T_C = 25°C	20A
		T_C = 100°C	12A
I_{DM}	Pulsed Drain Current		80A
P_D	Power Dissipation	T_C = 25°C	60W
		T_C = 100°C	20W
T_J , T_{stg}	Operating Junction 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							
$V_{(BR)DSS}$	Drain–Source Breakdown Voltage	V_{GS} = 0	I_D = 250µA	100			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} = 80V				25	µA
		V_{GS} = 0	T_J = 125°C			250	
$I_{D(on)}$	On–State Drain Current[1]	V_{DS} = 10V	V_{GS} = 10V	20			A
$r_{DS(on)}$	Drain – Source On–State Resistance [1]	V_{GS} = 10V			0.06	0.075	Ω
		I_D = 12A	T_J = 125°C		0.11	0.14	
g_{fs}	Forward Transconductance[1]	V_{DS} = 15V	I_{DS} = 12A	5.0	8.0		S
DYNAMIC CHARACTERISTICS							
C_{iss}	Input Capacitance	V_{GS} = 0			1400		pF
C_{oss}	Output Capacitance	V_{DS} = 25V			480		
C_{rss}	Reverse Transfer Capacitance	f = 1MHz			110		
Q_g	Total Gate Charge[2]	V_{DS} = 0.5 x $V_{(BR)DSS}$	50V		35	50	nC
Q_{gs}	Gate Source Charge[2]	V_{GS} = 10V	I_D = 20A		10	20	
Q_{gd}	Gate Drain Charge[2]				18	25	
$t_{d(on)}$	Turn–On Delay Time[2]	V_{DD} = 50V	I_D = 20A		13	30	ns
t_r	Rise Time[2]	V_{GEN} =10V			85	120	
$t_{d(off)}$	Turn–Off Delay Time[2]	R_L = 2.5Ω			35	80	
t_f	Fall Time[2]	R_G = 4.7Ω			75	95	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I_S	Continuous Current					20	A
I_{SM}	Pulsed Current					80	
V_{SD}	Diode Forward Voltage[1]	I_F = 20A	V_{GS} = 0			2.5	V
t_{rr}	Reverse Recovery Time	I_F = 20A			150	400	ns
Q_{rr}	Reverse Recovery Charge	di/dt = 100A/µs			0.5		µC

[1] Pulse test : Pulse Width < 300µs ,Duty Cycle < 2%

[2] Independent of Operating Temperature

THERMAL RESISTANCECHARACTERISTICS

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