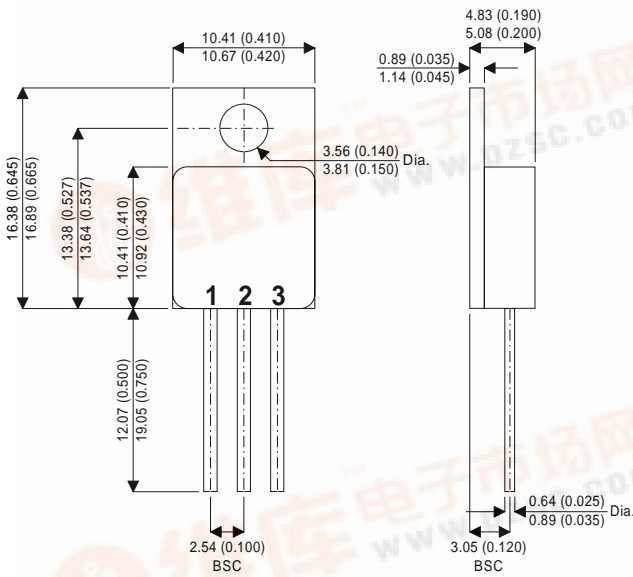


2N7086

MECHANICAL DATA

Dimensions in mm(inches)

**N-CHANNEL
ENHANCEMENT MODE
TRANSISTOR**



TO-257AB Metal Package

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

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

FEATURES

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

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

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



ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise stated)

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

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

²Independent of Operating Temperature

³Pulse width Limited by maximum Junction Temperature

THERMAL RESISTANCE CHARACTERISTICS

Parameter	Min.	Typ.	Max.	Unit
R_{thJC}			2.1	
R_{thJA}			80	K/W
R_{thCS}		1.0		