

X00151

2N5007 AND 2N5009

10 AMP

HIGH SPEED PNP TRANSISTOR

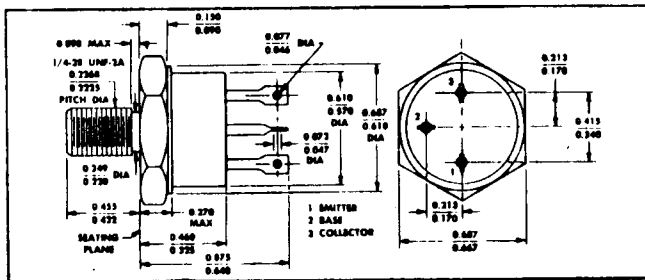
100 VOLTS



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CASE STYLE T
JEDEC TO-61
ALL TERMINALS ISOLATED FROM CASE

FEATURES



- RADIATION TOLERANT
- FAST SWITCHING, 100 NSEC MAX t_d
- HIGH FREQUENCY, TYPICAL f_T 100 MHZ
- BV_{CEO} 80 VOLTS MIN
- HIGH LINEAR GAIN, LOW SATURATION VOLTAGE
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- DESIGNED FOR COMPLEMENTARY USE WITH 2N5006 AND 2N5008

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V _{CEO}	80	Volts
Collector - Base Voltage	V _{CB0}	100	Volts
Emitter - Base Voltage	V _{EBO}	5.5	Volts
Collector Current	I _C	10	Amps
Base Current	I _B	3	Amps
Total Device Dissipation @ TC = 50 °C	P _D	100	Watts
Derate above 50 °C		667	mW/°C
Operating and Storage Temperature	T _j , T _{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	R _{θJC}	1.5	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* (I _C = 200 mA dc)	BV _{CEO} *	80		V _{dc}
Collector - Base Breakdown Voltage (I _C = 200 μA dc)	BV _{CB0}	100		V _{dc}
Emitter - Base Breakdown Voltage (I _E = 200 μA dc)	BV _{EBO}	5.5		V _{dc}

NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current ($V_{CE} = 40 \text{ Vdc}$) ($V_{CE} = 60 \text{ Vdc}$)	I_{CEO} I_{CES}		50 1.0	μAdc μAdc
Collector Cutoff Current ($V_{CE} = 100\text{Vdc}$) ($V_{CE} = 60 \text{ Vdc}$, $V_{BE} = 2 \text{ Vdc}$, $T_C = 150^\circ\text{C}$)	I_{CEX} I_{CEX}		1.0 500	mAdc μAdc
Emitter Cutoff Current ($V_{EB} = 4 \text{ Vdc}$) ($V_{EB} = 5.5 \text{ Vdc}$)	I_{EBO}		1.0 1.0	μAdc mAdc
DC Current Gain* ($I_C = 100 \text{ mAdc}$, $V_{CE} = 5 \text{ Vdc}$) ($I_C = 5 \text{ Adc}$, $V_{CE} = 5 \text{ Vdc}$) ($I_C = 10 \text{ Adc}$, $V_{CE} = 5 \text{ Vdc}$)	h_{FE}	20 50 30 70 20 45	90 200	
Collector - Emitter Saturation Voltage* ($I_C = 5 \text{ Adc}$, $I_B = 500 \text{ mAdc}$) ($I_C = 10 \text{ Adc}$, $I_B = 500 \text{ mAdc}$)	$V_{CE(SAT)}$		0.9 1.5	Vdc
Base - Emitter Saturation Voltage* ($I_C = 5 \text{ Adc}$, $I_B = 500 \text{ mAdc}$) ($I_C = 10 \text{ Adc}$, $I_B = 1 \text{ Adc}$)	$V_{BE(SAT)}$		1.8 2.2	Vdc
Current - Gain - Bandwidth Product ($I_C = 500 \text{ mAdc}$, $V_{CE} = 5 \text{ Vdc}$, $f = 20 \text{ MHz}$)	f_T	35 40		MHz
Output Capacitance ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 1 \text{ MHz}$)	C_{ob}		500	pf
Base - Emitter Voltage* ($V_{CE} = 5 \text{ Vdc}$, $I_C = 5 \text{ Adc}$)	$V_{BE(ON)}$ *		1.8	Vdc
Delay Time ($V_{CC} = 40 \text{ Vdc}$)	t_d		100	ns
Rise Time ($V_{EB(Off)} = 3.0 \text{ Vdc}$)	t_r		100	ns
Storage Time ($I_C = 2 \text{ Adc}$)	t_s		2.0	μs
Fall Time ($I_{B1} = I_{B2} = 200 \text{ mAdc}$)	t_f		200	ns

*Pulse Test: Pulse width = 300 μs , DutyCycle = 2%

TYPICAL OPERATING CURVES

FORWARD BIAS DC SAFE OPERATION AREA (S.O.A. CURVE)
CURVES APPLY BELOW RATED V_{CEO} $T_C = 25^\circ\text{C}$

