2N5659
10 AMP
HIGH SPEED NPN TRANSISTOR
120 VOLTS

SSDI
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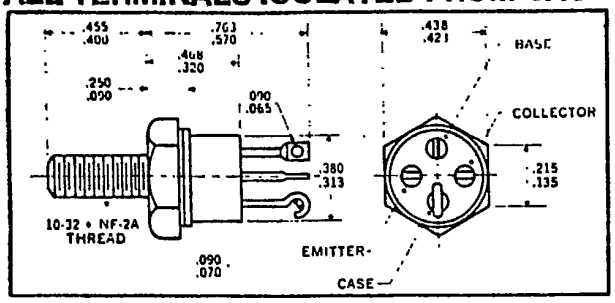
CASE STYLE Z
JEDEC TO-111
ALL TERMINALS ISOLATED FROM CASE



FEATURES

- RADIATION TOLERANT
- FAST SWITCHING, 150 NSEC MAX ton
- HIGH FREQUENCY, TYPICAL f_T 100 MHZ
- BVCEO 80 VOLTS MIN
- HIGH LINEAR GAIN, LOW SATURATION VOLTAGE
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- DESIGNED FOR COMPLEMENTARY USE WITH 2N6188 AND 2N6189

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V_{CEO}	80	Volts
Collector - Base Voltage	V_{CBO}	120	Volts
Emitter - Base Voltage	V_{EBO}	7	Volts
Collector Current	I_C	10	Amps
Base Current	I_B	2	Amps
Total Device Dissipation @ TC = 100°C	P_D	30	Watts
Derate above 100 °C		300	mW/°C
Operating and Storage Temperature	Tj, Tstg	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	RθJC	3.33	°C W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage*				
(I_C = 100 m Adc)	BV_{CEO}*	80		Vdc
(I_C = 100 m Adc, R_{BE} = 10 ohms)	BV_{CER}*	120		
Collector - Base Breakdown Voltage				Vdc
(I_C = 200 u Adc)	BV_{CBO}	120		
Emitter - Base Breakdown Voltage				
(I_E = 200 uAdc)	BV_{EBO}	7		Vdc

NOTE: All specifications subject to change without notice.

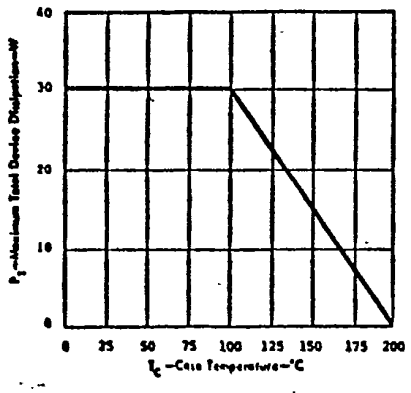
ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current (V_{CE}= 120 Vdc)	I_{CES}		200	nAdc
Collector Cutoff Current (V_{CE}= 80 Vdc, TC = 150°C)	I_{CES}		100	uAdc
Emitter Cutoff Current (V_{EB} = 7 Vdc)	I_{EBO}		10	uAdc
DC Current Gain* (I_C = 500 mAdc, V_{CE} = 2 Vdc) (I_C = 5 Adc, V_{CE} = 5 Vdc) (I_C = 10 Adc, V_{CE} = 5 Vdc)	h_{FE}*	40 50 30	250 150	
Collector - Emitter Saturation Voltage* (I_C = 5 Adc, I_B = 500 mAdc) (I_C = 10 Adc, I_B = 1 Adc)	$V_{CE(SAT)}$*		0.5 1.0	Vdc
Base - Emitter Saturation Voltage* (I_C = 5 Adc, I_B = 500 mAdc) (I_C = 10 Adc, I_B = 1 Adc)	$V_{BE(SAT)}$*		1.3 1.8	Vdc
Current - Gain - Bandwith Product (I_C = 500 mAdc, V_{CE} = 5 Vdc, f = 10 MHz)	f_T	30		M Hz
Output Capacitance (V_{CB} = 10 Vdc I_E = 0, f = 1 MHz)	C_{ob}		150	pf
Delay Time Rise Time Storage Time Fall Time (V_{CC} = 25 Vdc, I_C = 5 Adc, I_{B1} = I_{B2} = 250 mAdc, Base - Emitter clamp diode= 1N5802 or equivalent)	t_d + t_r (t_{on}) t_s + t_f (t_{off})		150 800	ns ns

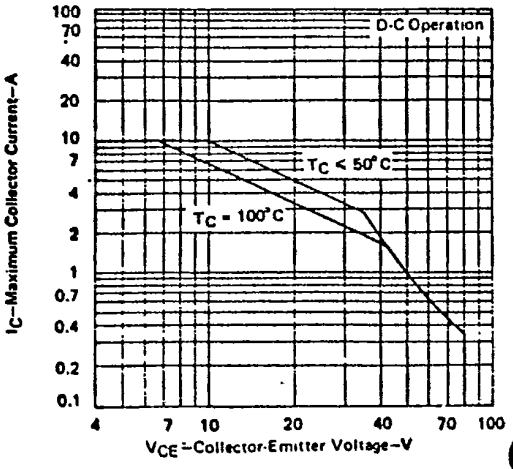
*Pulse Test: Pulse width = 300 us, DutyCycle = 2%

TYPICAL OPERATING CURVES

DISSIPATION DERATING CURVE



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



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