2N3996 AND 2N3997
5 AMP
HIGH SPEED NPN TRANSISTOR
100 VOLTS

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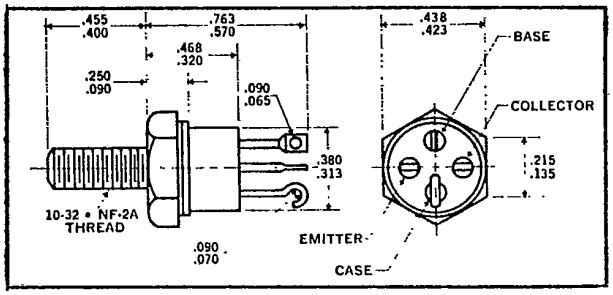
CASE STYLE Z
JEDEC TO-111
ALL TERMINALS ISOLATED FROM CASE



FEATURES

- RADIATION TOLERANT
- FAST SWITCHING, 300 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 2N4999 AND 2N5001

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V_{CEO}	80	Volts
Collector - Base Voltage	V_{CBO}	100	Volts
Emitter - Base Voltage	V_{EBO}	8	Volts
Collector Current	I_C	5	Amps
Base Current	I_B	1	Amps
Total Device Dissipation @ TC = 100°C Derate above 100 °C	P_D	30 300	Watts 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 = 50 mAdc)	BV_{CEO}*	80		Vdc
Collector - Base Breakdown Voltage (I_C = 200 uAdc)	BV_{CBO}	100		Vdc
Emitter - Base Breakdown Voltage (I_E = 200 uAdc)	BV_{EBO}	8		Vdc

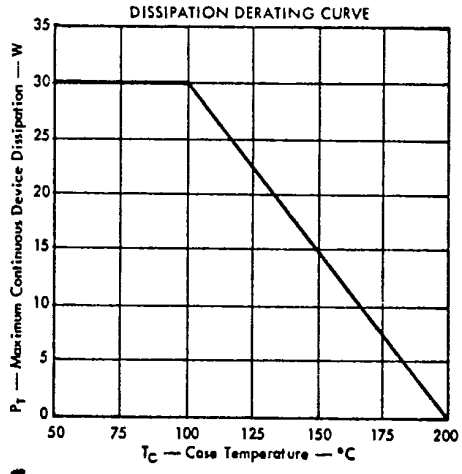
NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

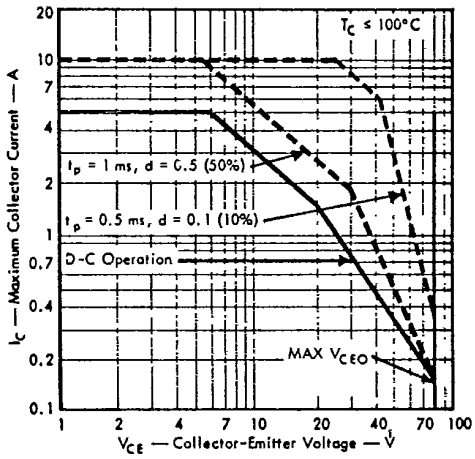
Characteristics		Symbol	Min.	Max.	Unit
Collector Cutoff Current (V_{CE} = 60 Vdc)		I_{CEO}		10	uAdc
Collector Cutoff Current (V_{CE} = 90 Vdc)		I_{CES}		5	uAdc
(V_{CE} = 90 Vdc, TC = 150°C)				50	uAdc
Emitter Cutoff Current (V_{EB} = 5 Vdc)		I_{EBO}		500	nAdc
(V_{EB} = 8 Vdc)				10	uAdc
DC Current Gain* (I_C = 50 mAdc, V_{CE} = 2 Vdc)	2N3996	h_{FE}*	30		
	2N3997		60	120	
(I_C = 1 Adc, V_{CE} = 2 Vdc)	2N3996		40		
	2N3997		80	240	
(I_C = 5 Adc, V_{CE} = 2 Vdc)	2N3996		15		
	2N3997		20		
Collector - Emitter Saturation Voltage* (I_C = 1 Adc, I_B = 100 mAdc)		$V_{CE(SAT)}$*		0.25	Vdc
(I_C = 5 Adc, I_B = 500 mAdc)				2.0	
Base - Emitter Saturation Voltage* (I_C = 1 Adc, I_B = 100 mAdc)		$V_{BE(SAT)}$*	0.6	1.2	Vdc
(I_C = 5 Adc, I_B = 500 mAdc)				1.6	
Current - Gain - Bandwith Product (I_C = 1 Adc V_{CE} = 5 Vdc, f = 10 MHz)		f_T	40		MHz
Output Capacitance (V_{CB} = 10 Vdc I_E = 0, f = 1 MHz)		C_{ob}		150	pf
Delay Time / Rise Time (V_{CC} = 20 Vdc, I_C = 1 Adc, $V_{EB(Off)}$ = 3.7 Vdc, I_{B1} = I_{B2} = 100 mAdc, R_L = 20 Ohms)	(t_{on})	t_d + t_r		300	ns
Storage Time / Fall Time	(t_{off})	t_s + t_f		1.5	us

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

TYPICAL OPERATING CURVES



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



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