

X60146

SSDII

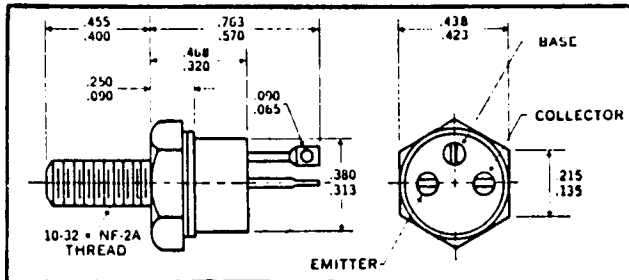
14830 Valley View Avenue
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 (213) 921-9660
 TWX 910-583-4807
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2N5003 AND 2N5005

5 AMP

HIGH SPEED PNP TRANSISTOR

100 VOLTS

CASE STYLE X**JEDEC TO-59****ALL TERMINALS ISOLATED FROM CASE****FEATURES**

- RADIATION TOLERANT
- FAST SWITCHING, TYPICAL 200 NSEC t_{on}
- HIGH FREQUENCY, TYPICAL f_T 100 MHZ
- V_{CEO} 80 VOLTS MIN
- HIGH LINEAR GAIN, LOW SATURATION VOLTAGE
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- DESIGNED FOR COMPLEMENTARY USE WITH 2N5002 AND 2N5004

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}	6	Volts
Collector Current	I_C	5	Amps
Base Current	I_B	2	Amps
Total Device Dissipation @ $T_C = 50^\circ\text{C}$	P_D	50	Watts
Derate above 50 °C		333	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	$R_{\theta JC}$	3.0	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* ($I_C = 100 \text{ mAdc}$)	BV_{CEO}	80		Vdc
Collector - Base Breakdown Voltage ($I_C = 200 \text{ uAdc}$)	BV_{CBO}	100		Vdc
Emitter - Base Breakdown Voltage ($I_E = 200 \text{ uAdc}$)	BV_{EBO}	6		Vdc

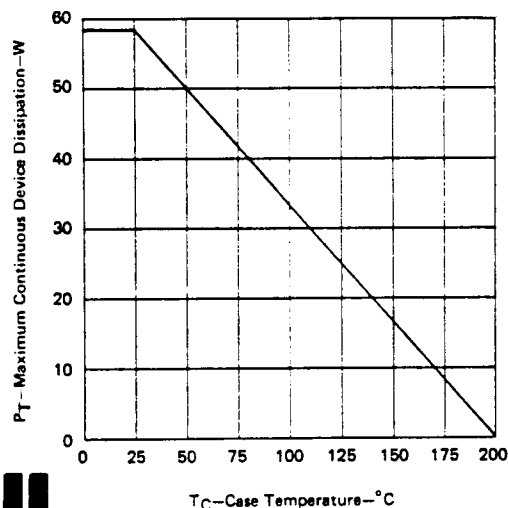
ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current ($V_{CE} = 60 \text{ Vdc}$, $V_{BE} = 2 \text{ Vdc}$, $T_C = 150^\circ\text{C}$) ($V_{CE} = 40 \text{ Vdc}$)	I_{CEV} I_{CEO}		500 50	μAdc μAdc
Collector Cutoff Current ($V_{CE} = 60 \text{ Vdc}$) ($V_{CE} = 100 \text{ Vdc}$)	I_{CES}		1.0 1.0	μAdc mAdc
Emitter Cutoff Current ($V_{EB} = 5 \text{ Vdc}$) ($V_{EB} = 6 \text{ Vdc}$)	I_{EBO}		1.0 1.0	μAdc mAdc
DC Current Gain* $(I_C = 50 \text{ mAdc}, V_{CE} = 5 \text{ Vdc})$ $(I_C = 2.5 \text{ Adc}, V_{CE} = 5 \text{ Vdc})$ $(I_C = 5 \text{ Adc}, V_{CE} = 5 \text{ Vdc})$ 2N5003 2N5005 2N5003 2N5005 2N5003 2N5005	h_{FE}	20 50 30 70 20 40	90 200	
Collector - Emitter Saturation Voltage* $(I_C = 2.5 \text{ Adc}, I_B = 250 \text{ mAdc})$ $(I_C = 5 \text{ Adc}, I_B = 500 \text{ mAdc})$	$V_{CE(SAT)}$		0.75 1.5	Vdc
Base - Emitter Saturation Voltage* $(I_C = 2.5 \text{ Adc}, I_B = 250 \text{ mAdc})$ $(I_C = 5 \text{ Adc}, I_B = 500 \text{ mAdc})$	$V_{BE(SAT)}$		1.45 2.2	Vdc
Current - Gain - Bandwidth Product $(I_C = 500 \text{ mAdc}, V_{CE} = 5 \text{ Vdc}, f = 20 \text{ MHz})$ 2N5003 2N5005	f_T	60 70		MHz
Output Capacitance ($V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 1 \text{ MHz}$)	C_{ob}		250	pf
Base - Emitter Voltage* ($V_{CE} = 5 \text{ Vdc}, I_C = 2.5 \text{ Adc}$)	$V_{BE(ON)}$		1.45	Vdc
Delay Time ($V_{CC} = 30 \text{ Vdc}, I_C = 5 \text{ Adc}, V_{EB(Off)} = 3.7 \text{ Vdc}, I_{B1} = I_{B2} = 500 \text{ mAdc}, R_L = 6 \text{ Ohms}$) (t_{on})	$t_d + t_r$		500	ns
Rise Time	$t_s + t_f$		1.3	μs
Storage Time				
Fall Time				

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

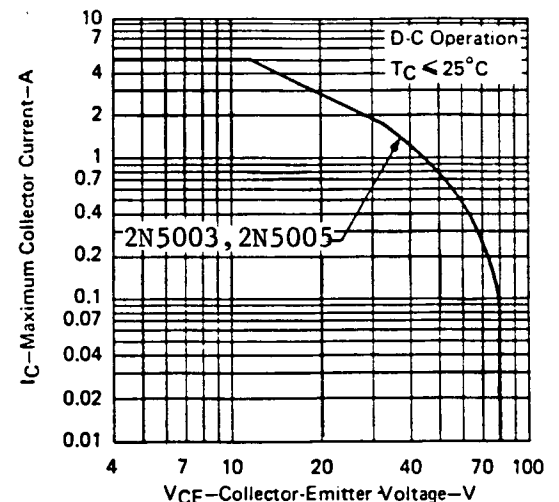
TYPICAL OPERATING CURVES

DISSIPATION DERATING CURVE



FORWARD BIAS DC SAFE OPERATION AREA (S.O.A. CURVE)

CURVES APPLY BELOW RATED V_{CEO} $T_C = 25^\circ\text{C}$



SSDII SOLID STATE DEVICES, INC.