

NPN
TIP100
TIP101
TIP102

PNP
TIP105
TIP106
TIP107

60-80-100 VOLTS, 8 AMPERE

DARLINGTON COMPLEMENTARY SILICON POWER TRANSISTORS

HIGH CURRENT GAIN $h_{FE} = 4000$ typ. @ 3V, 4A
 LOW SATURATION VOLTAGE $V_{CE(SAT)} = 1.0V$ typ. @ 4A
 MONOLITHIC CONSTRUCTION WITH BUILT-IN
 (1) BASE-EMITTER RESISTORS AND
 (2) COLLECTOR-EMITTER DIODE

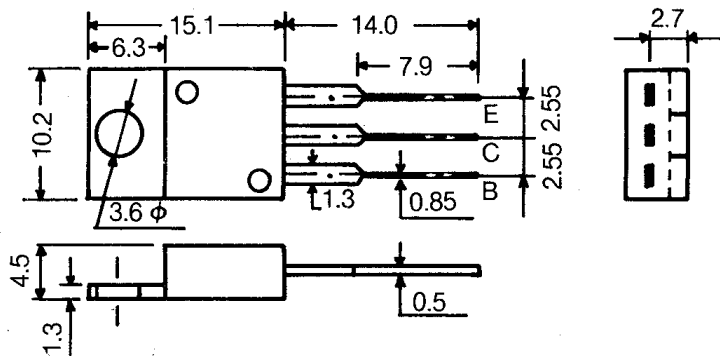
ABSOLUTE MAXIMUM RATINGS @ $T_a = 25^\circ C$

RATING	SYMBOL	TIP100, TIP105	TIP101, TIP106	TIP102, TIP107	UNIT
COLLECTOR-EMITTER VOLTAGE	V_{CEO}	60	80	100	Vdc
COLLECTOR-BASE VOLTAGE	V_{CB}	60	80	100	Vdc
EMITTER-BASE VOLTAGE	V_{EB}	5.0			Vdc
COLLECTOR CURRENT- CONTINUOUS PEAK	I_C	8.0 15			Adc
TOTAL POWER DISSIPATION @ $T_C = 25^\circ C$	P_D	80			W
TOTAL POWER DISSIPATION @ $T_A = 25^\circ C$	P_D	2.0			W
OPERATING AND STORAGE JUNCTION TEMPERATURE RANGE	T_J, T_{stg}	- 55 to + 150			$^\circ C$

OUTLINE DIMENSION

JEDEC: TO-220

UNIT: mm



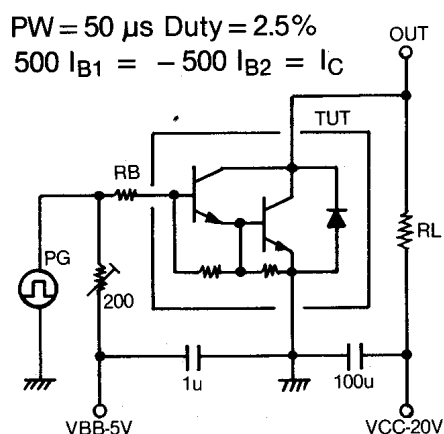
JEDEC: TO-220AB
EIAJ: SC-46

E: Emitter
C: Collector
B: Base

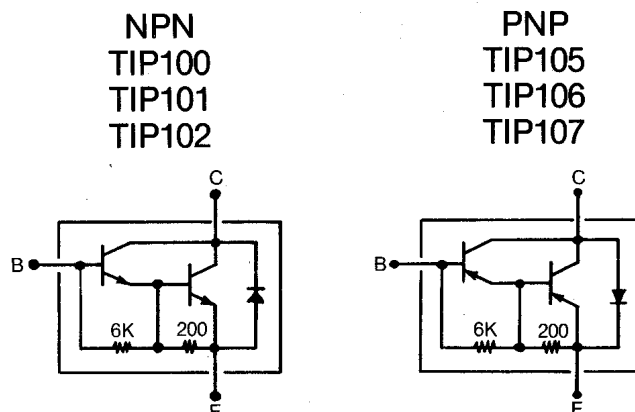
ELECTRICAL CHARACTERISTICS @ Ta = 25°C

CHARACTERISTIC	SYMBOL	MIN	MAX	UNIT
COLLECTOR-EMITTER SUSTAINING VOLTAGE ($I_C = 30 \text{ mAdc}$, $I_B = 0$) TIP100, TIP105 TIP101, TIP106 TIP102, TIP107	$V_{CE(SUS)}$	60 80 100	— — —	Vdc
COLLECTOR CUTOFF CURRENT ($V_{CE} = 30 \text{ Vdc}$, $I_B = 0$) ($V_{CE} = 40 \text{ Vdc}$, $I_B = 0$) ($V_{CE} = 50 \text{ Vdc}$, $I_B = 0$) TIP100, TIP105 TIP101, TIP106 TIP102, TIP107	I_{CEO}	— — —	50 50 50	μAdc
COLLECTOR CUTOFF CURRENT ($V_{CB} = 60 \text{ Vdc}$, $I_E = 0$) ($V_{CB} = 80 \text{ Vdc}$, $I_E = 0$) ($V_{CB} = 100 \text{ Vdc}$, $I_E = 0$) TIP100, TIP105 TIP101, TIP106 TIP102, TIP107	I_{CBO}	— — —	50 50 50	μAdc
EMITTER CUTOFF CURRENT ($V_{BE} = 5.0 \text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	8.0	mAdc
DC CURRENT GAIN ($I_C = 3.0 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$) ($I_C = 8.0 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$)	h_{FE}	1000 200	20,000 —	—
COLLECTOR-EMITTER SATURATION VOLTAGE ($I_C = 3.0 \text{ Adc}$, $I_B = 6.0 \text{ mAdc}$) ($I_C = 8.0 \text{ Adc}$, $I_B = 80 \text{ mAdc}$)	$V_{CE(SAT)}$	— —	2.0 2.5	Vdc
BASE-EMITTER ON VOLTAGE ($I_C = 8.0 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$)	$V_{BE(ON)}$	—	2.8	Vdc
GAIN BANDWIDTH PRODUCT ($I_C = 4.0 \text{ A}$, $V_{CE} = 5\text{V}$)	f_T	20 typ.		mHz
OUTPUT CAPACITANCE ($V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{mHz}$) TIP100, 101, 102 TIP105, 106, 107	C_{ob}		200 300	pF pF

SWITCHING TIME TEST CIRCUIT

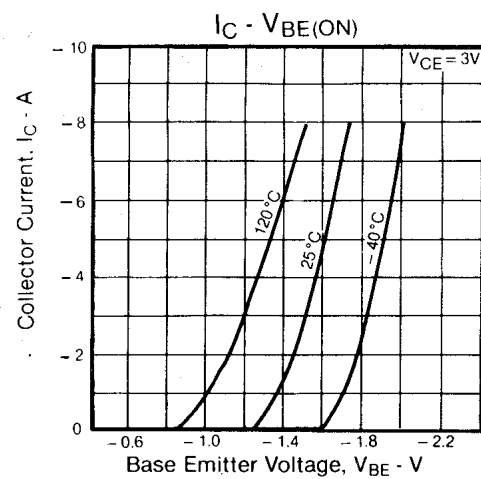
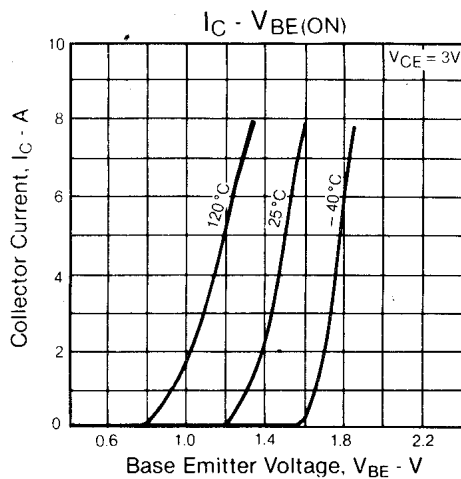
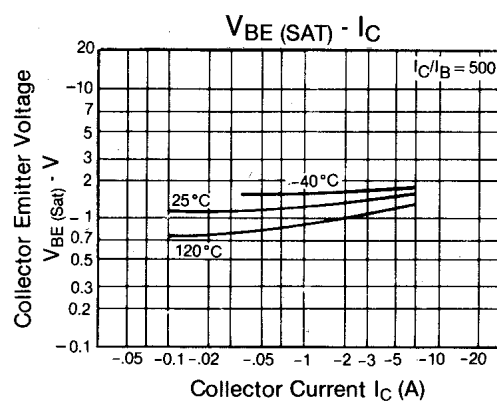
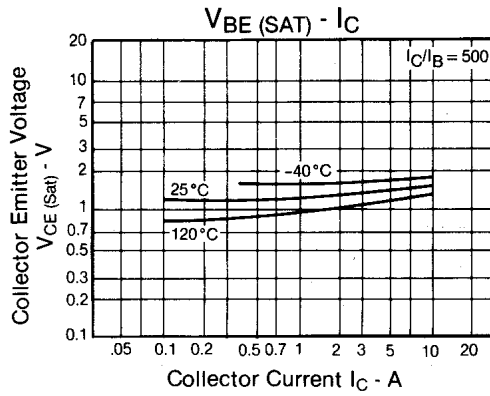
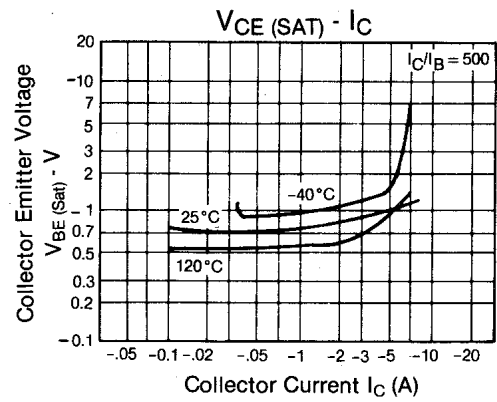
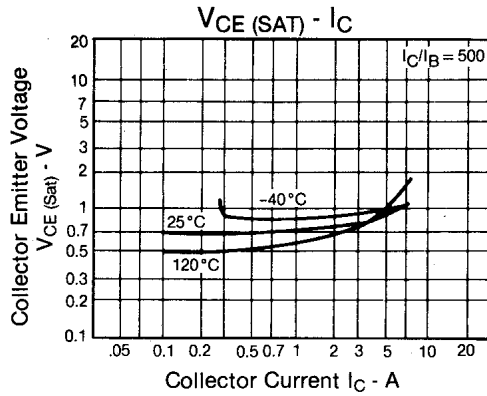
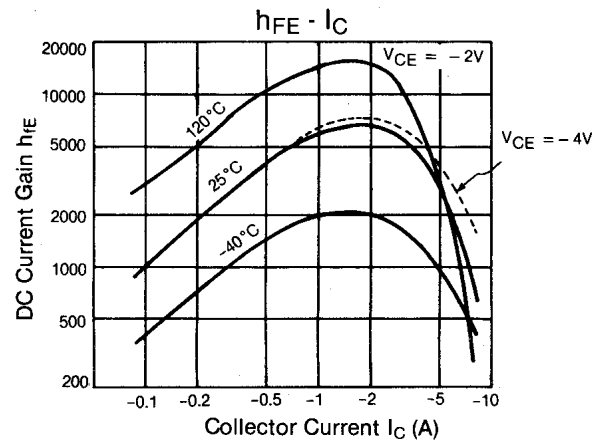
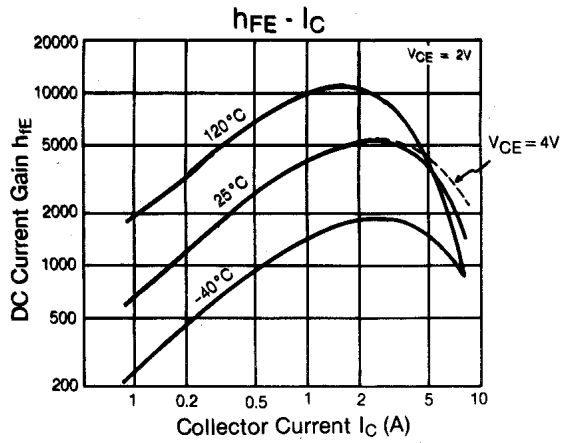


DARLINGTON SCHEMATIC

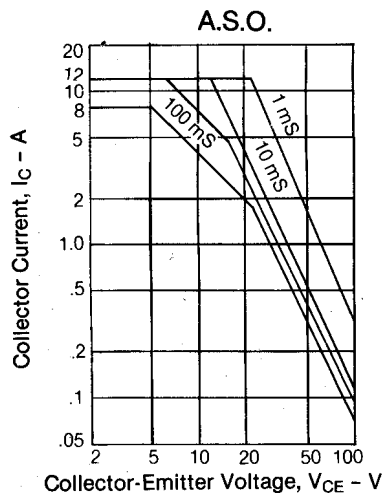
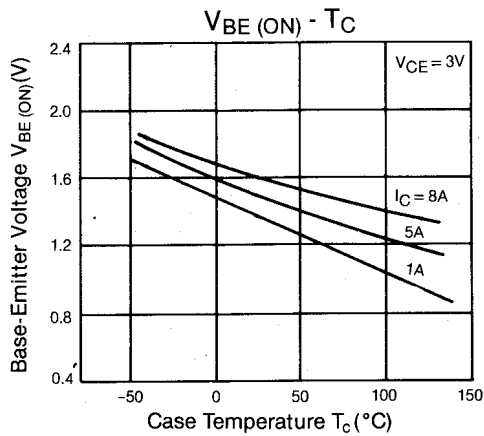
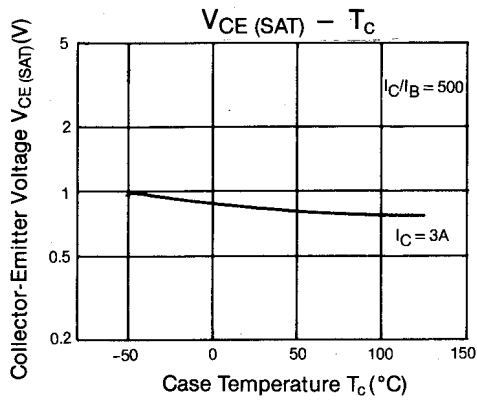
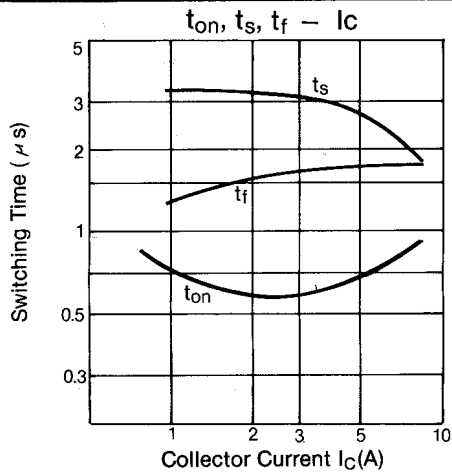


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