

DARLINGTON COMPLEMENTARY SILICON POWER TRANSISTORS

NPN	PNP
TIP120	TIP125
TIP121	TIP126
TIP122	TIP127

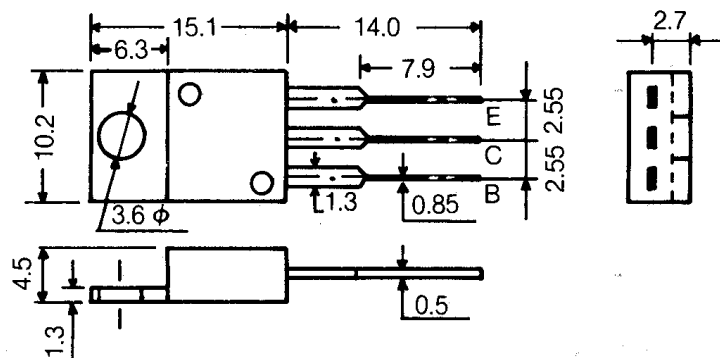
60-80-100 VOLTS, 5 AMPERE

HIGH CURRENT GAIN $h_{FE} = 2500$ typ. @ 3V, 3A
 LOW SATURATION VOLTAGE $V_{CE(SAT)} = 1.0V$ typ. @ 2.5A
 MONOLITHIC CONSTRUCTION WITH BUILT-IN
 (1) BASE-EMITTER RESISTORS AND
 (2) COLLECTOR-EMITTER DIODE

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

RATING	SYMBOL	TIP120, TIP125	TIP121, TIP126	TIP122, TIP127	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	← 5.0 → ← 8.0 →			A _{dc}
TOTAL POWER DISSIPATION @ $T_C = 25^\circ C$	P_D	← 65 →			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



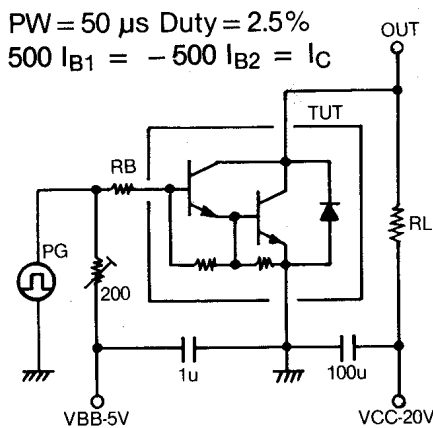
JEDEC: TO-220AB
 EIAJ: SC-46

E: Emitter
 C: Collector
 B: Base

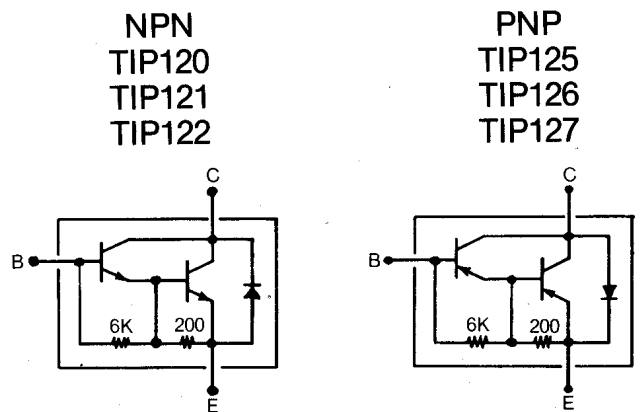
ELECTRICAL CHARACTERISTICS @ $T_a = 25^\circ\text{C}$

CHARACTERISTIC	SYMBOL	MIN	MAX	UNIT
COLLECTOR-EMITTER SUSTAINING VOLTAGE ($I_C = 30 \text{ mAdc}, I_B = 0$)	$V_{CE(SUS)}$	60 80 100	— — —	Vdc
COLLECTOR CUTOFF CURRENT ($V_{CE} = 30 \text{ Vdc}, I_B = 0$) ($V_{CE} = 40 \text{ Vdc}, I_B = 0$) ($V_{CE} = 50 \text{ Vdc}, I_B = 0$)	I_{CEO}	— — —	0.5 0.5 0.5	mAdc
COLLECTOR CUTOFF CURRENT ($V_{CB} = 60 \text{ Vdc}, I_E = 0$) ($V_{CB} = 80 \text{ Vdc}, I_E = 0$) ($V_{CB} = 100 \text{ Vdc}, I_E = 0$)	I_{CBO}	— — —	0.2 0.2 0.2	mAdc
EMITTER CUTOFF CURRENT ($V_{BE} = 5.0 \text{ Vdc}, I_C = 0$)	I_{EBO}	—	2.0	mAdc
DC CURRENT GAIN ($I_C = 0.5 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$) ($I_C = 3.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$)	h_{FE}	1000 1000	— —	—
COLLECTOR-EMITTER SATURATION VOLTAGE ($I_C = 3.0 \text{ Adc}, I_B = 12 \text{ mAdc}$) ($I_C = 5.0 \text{ Adc}, I_B = 20 \text{ mAdc}$)	$V_{CE(SAT)}$	— —	2.0 4.0	Vdc
BASE-EMITTER ON VOLTAGE ($I_C = 3.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$)	$V_{BE(ON)}$	—	2.5	Vdc
GAIN BANDWIDTH PRODUCT ($I_C = 2.5 \text{ A}, V_{CE} = 5.0\text{V}$)	f_T	20 typ.		mHz

SWITCHING TIME TEST CIRCUIT

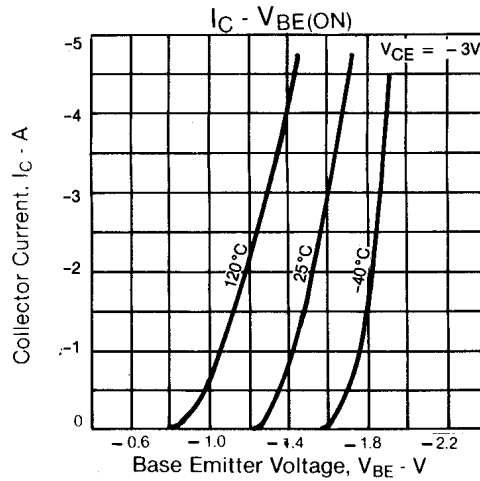
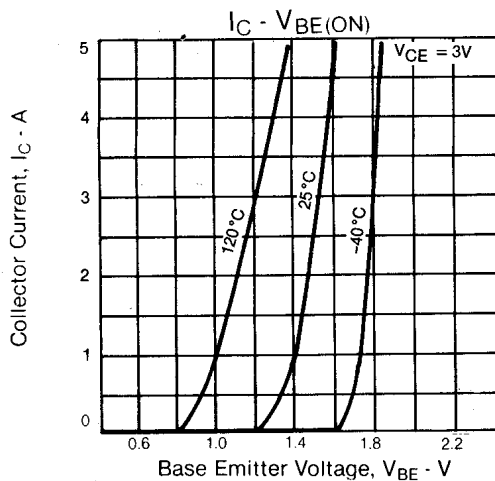
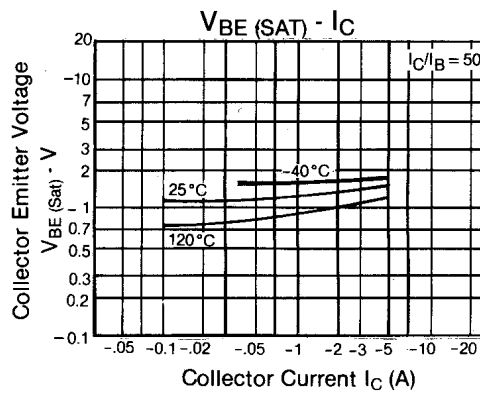
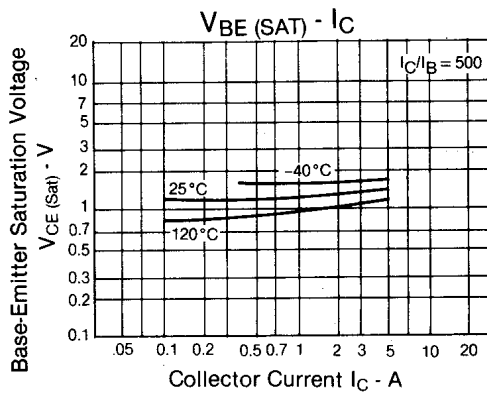
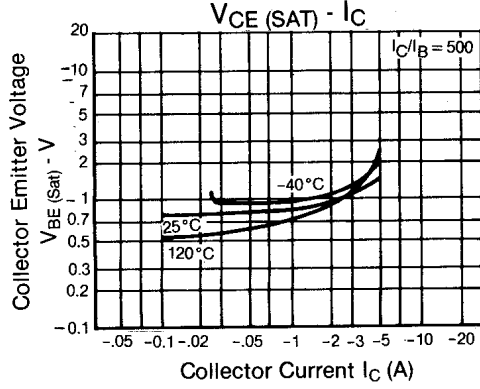
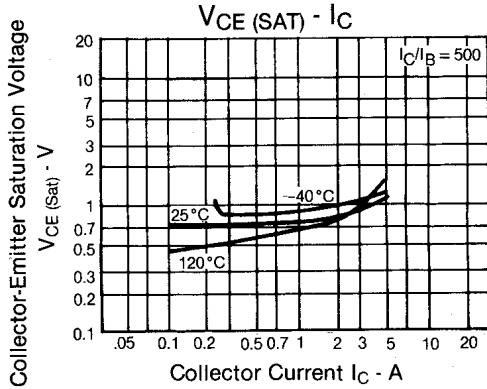
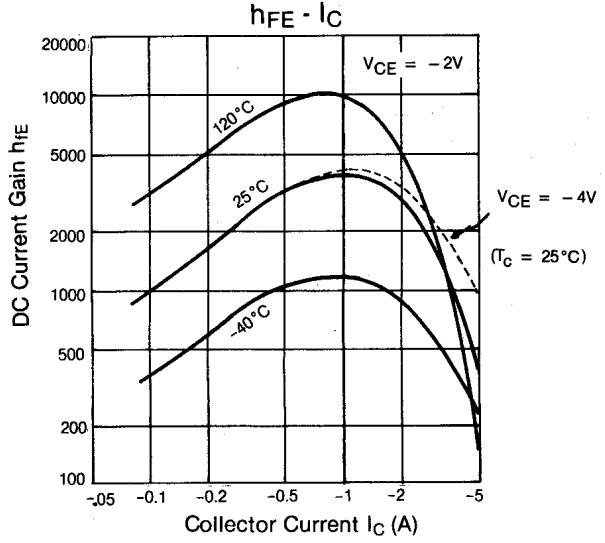
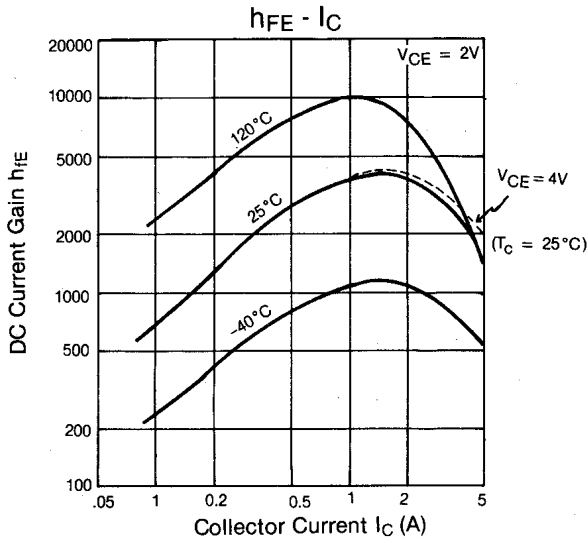


DARLINGTON SCHEMATIC

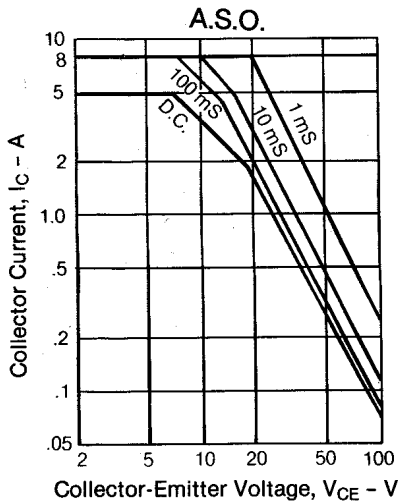
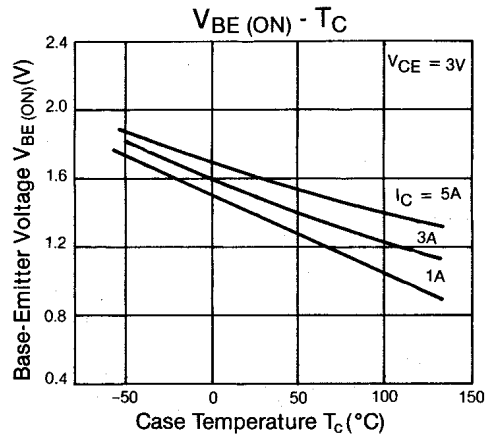
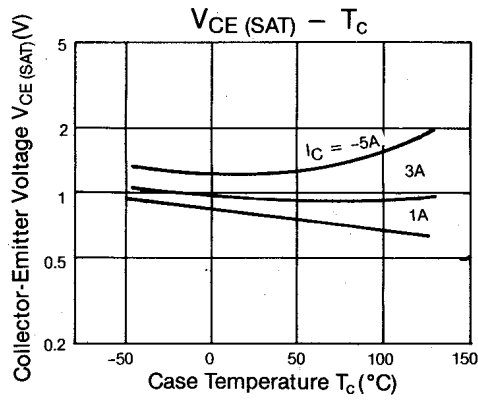
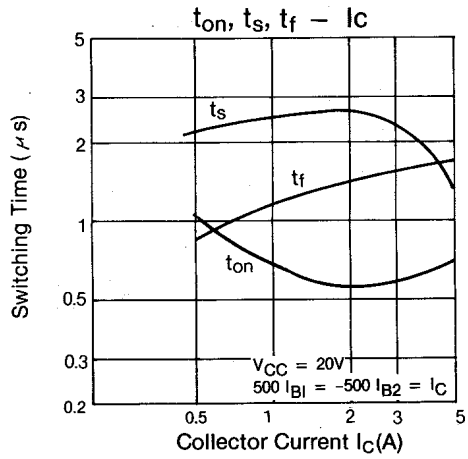


NPN
TIP 120, TIP 121, TIP 122

PNP
TIP 125, TIP 126, TIP 127



NPN
TIP 120, TIP 121, TIP 122



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