

DARLINGTON COMPLEMENTARY SILICON POWER TRANSISTORS

NPN	PNP
TIP120	TIP125
TIP121	TIP126
TIP122	TIP127

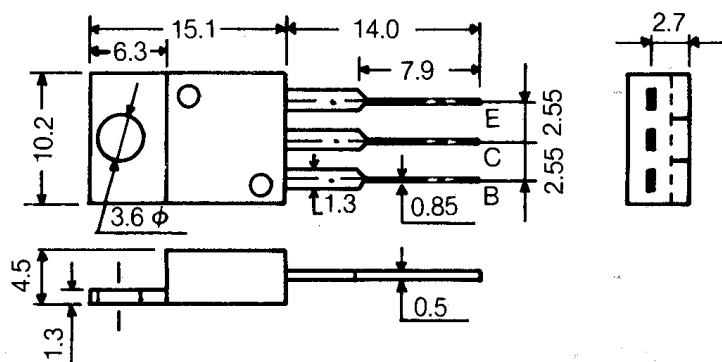
60-80-100 VOLTS, 5 AMPERE

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	V _{dc}
COLLECTOR-BASE VOLTAGE	V _{CB}	60	80	100	V _{dc}
EMITTER-BASE VOLTAGE	V _{EB}	← 5.0 →			V _{dc}
COLLECTOR CURRENT- CONTINUOUS PEAK	I _C	← 5.0 →			A _{dc}
		← 8.0 →			
TOTAL POWER DISSIPATION @ T _C = 25°C	P _D	← 65 →			W
TOTAL POWER DISSIPATION @ T _A = 25°C	P _D	← 2.0 →			W
OPERATING AND STORAGE JUNCTION TEMPERATURE RANGE	T _J , T _{stg}	← - 55 to + 150 →			°C

OUTLINE DIMENSION
JEDEC: TO-220
UNIT: MM



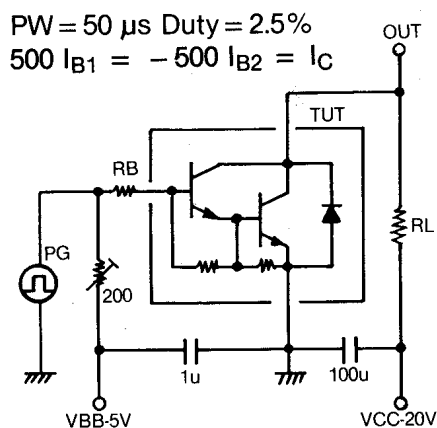
JEDEC: TO-220AB
 EIAJ: SC-46

E: Emitter
 C: Collector
 B: Base

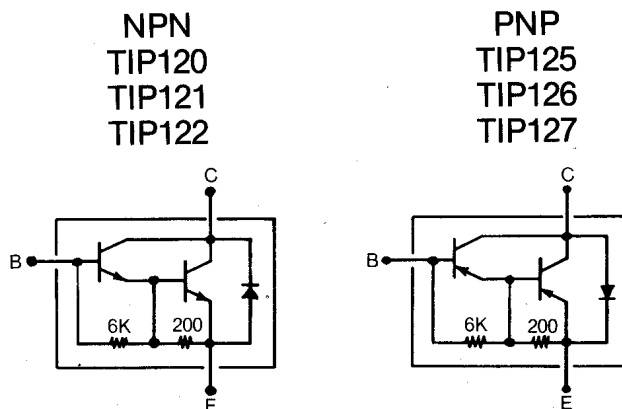
ELECTRICAL CHARACTERISTICS @ Ta = 25°C

CHARACTERISTIC	SYMBOL	MIN	MAX	UNIT
COLLECTOR-EMITTER SUSTAINING VOLTAGE ($I_C = 30 \text{ mAdc}$, $I_B = 0$) TIP120, TIP125 TIP121, TIP126 TIP122, TIP127	$V_{CE(SUS)}$	60 80 100	— — —	Vdc
COLLECTOR CUTOFF CURRENT ($V_{CE} = 30 \text{ Vdc}$, $I_B = 0$) ($V_{CE} = 40 \text{ Vdc}$, $I_B = 0$) ($V_{CE} = 50 \text{ Vdc}$, $I_B = 0$) TIP120, TIP125 TIP121, TIP126 TIP122, TIP127	I_{CEO}	— — —	0.5 0.5 0.5	mAdc
COLLECTOR CUTOFF CURRENT ($V_{CB} = 60 \text{ Vdc}$, $I_E = 0$) ($V_{CB} = 80 \text{ Vdc}$, $I_E = 0$) ($V_{CB} = 100 \text{ Vdc}$, $I_E = 0$) TIP120, TIP125 TIP121, TIP126 TIP122, TIP127	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

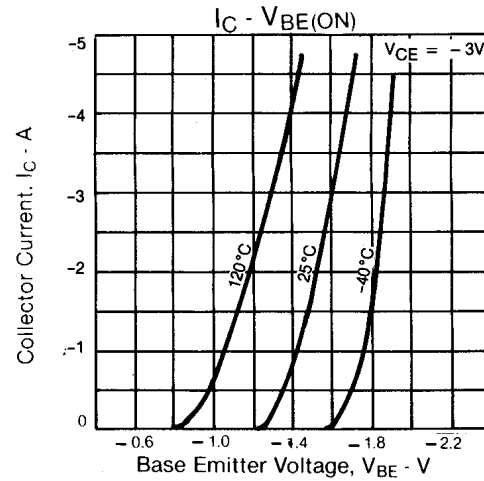
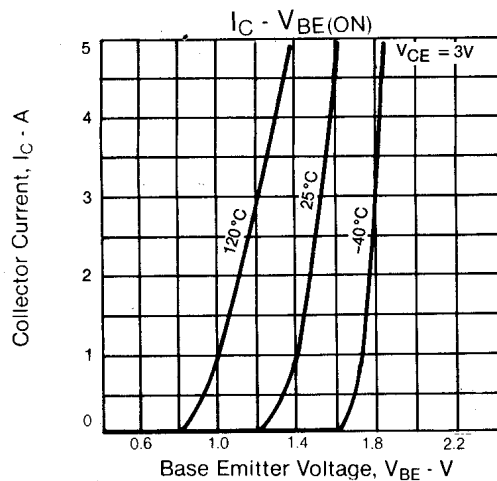
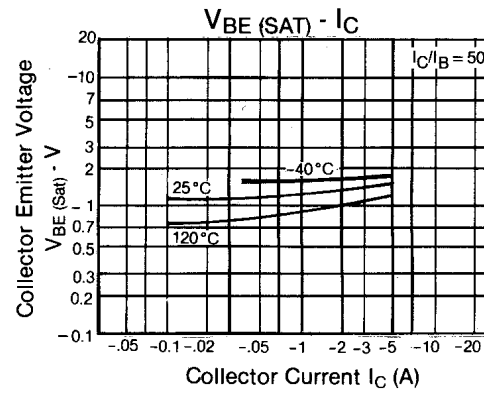
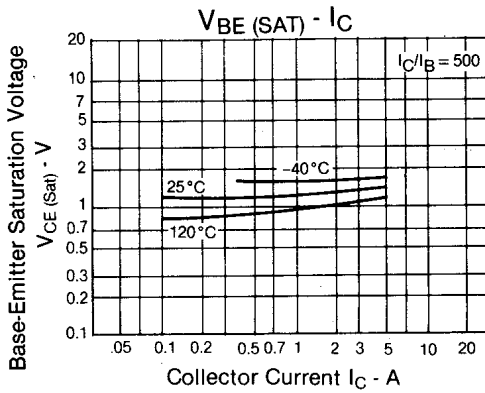
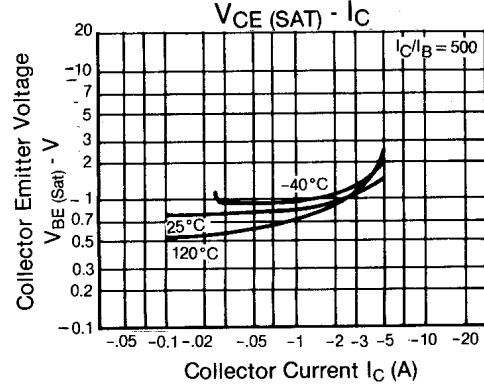
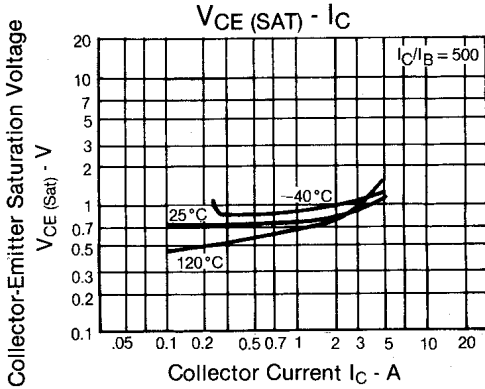
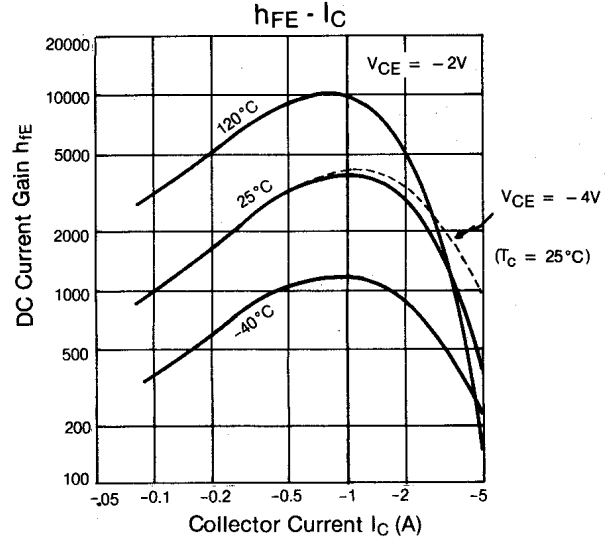
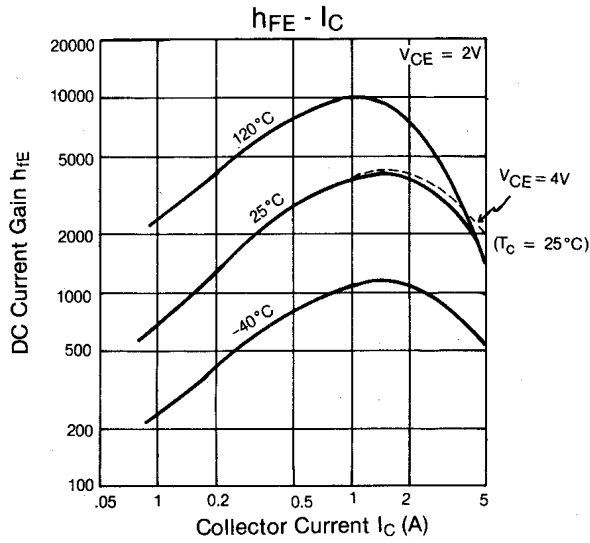


DARLINGTON SCHEMATIC

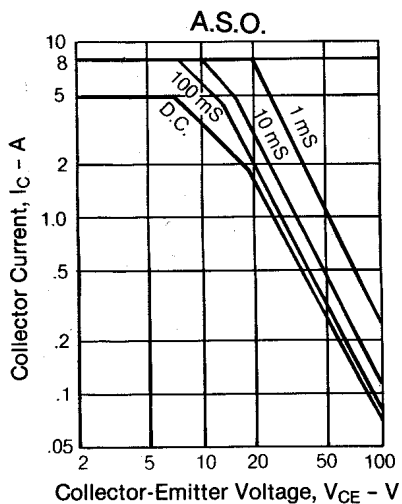
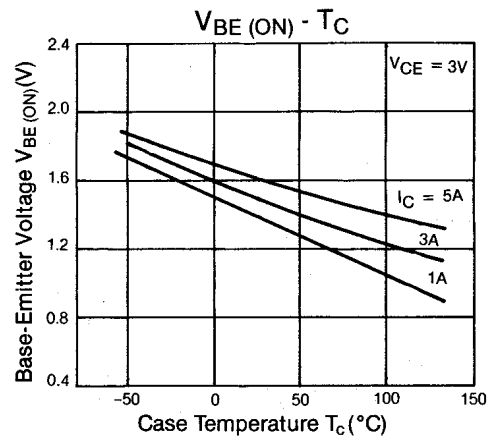
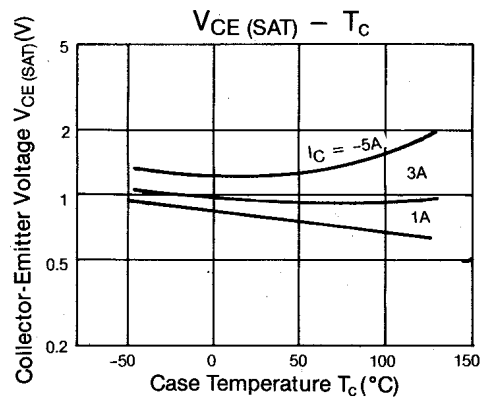
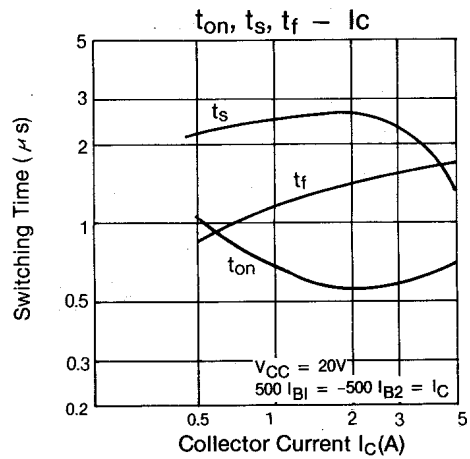


NPN
TIP 120, TIP 121, TIP 122

PNP
TIP 125, TIP 126, TIP 127



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