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MPSA75
MPSA76
MPSA77

CASE 29-02, STYLE 1
TO-92 (TO-226AA)

DARLINGTON TRANSISTOR

PNP SILICON

MAXIMUM RATINGS

Rating	Symbol	MPSA75	MPSA76	MPSA77	Unit
Collector-Emitter Voltage	V_{CES}	40	50	60	Vdc
Emitter-Base Voltage	V_{EBO}		10		Vdc
Collector Current — Continuous	I_C		500		mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D		625 5.0		mW mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}		−55 to +150		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	°C/W

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage (I_C = 100 μAdc, V_{BE} = 0)	MPSA75	$V_{(BR)CES}$	40	—	—	Vdc
	MPSA76		50	—	—	
	MPSA77		60	—	—	
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	MPSA75	$V_{(BR)CBO}$	40	—	—	Vdc
	MPSA76		50	—	—	
	MPSA77		60	—	—	
Collector Cutoff Current		I_{CBO}				nAdc
(V_{CB} = 30 V, I_E = 0)	MPSA75		—	—	100	
(V_{CB} = 40 V, I_E = 0)	MPSA76		—	—	100	
(V_{CB} = 50 V, I_E = 0)	MPSA77		—	—	100	
Collector Cutoff Current		I_{CES}				nAdc
(V_{CE} = 30 V, V_{BE} = 0)	MPSA75		—	—	500	
(V_{CE} = 40 V, V_{BE} = 0)	MPSA76		—	—	500	
(V_{CE} = 50 V, V_{BE} = 0)	MPSA77		—	—	500	
Emitter Cutoff Current (V_{BE} = 10 Vdc)		I_{EBO}	—	—	100	nAdc
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				—
(I_C = 10 mA, V_{CE} = 5.0 V)			10,000	—	—	
(I_C = 100 mA, V_{CE} = 5.0 V)			10,000	—	—	
Collector-Emitter Saturation Voltage (I_C = 100 mA, I_B = 0.1 mAdc)		$V_{CE(sat)}$	—	—	1.5	Vdc
Base-Emitter On Voltage (I_C = 100 mA, V_{CE} = 5.0 Vdc)		V_{BE}	—	—	2.0	Vdc
SMALL-SIGNAL CHARACTERISTICS						
Current Gain — High Frequency (I_C = 10 mA, V_{CE} = 5.0 V, f = 100 MHz)		$\|h_{fe}\|$	1.25	2.4	—	—

FIGURE 1 — DC CURRENT GAIN

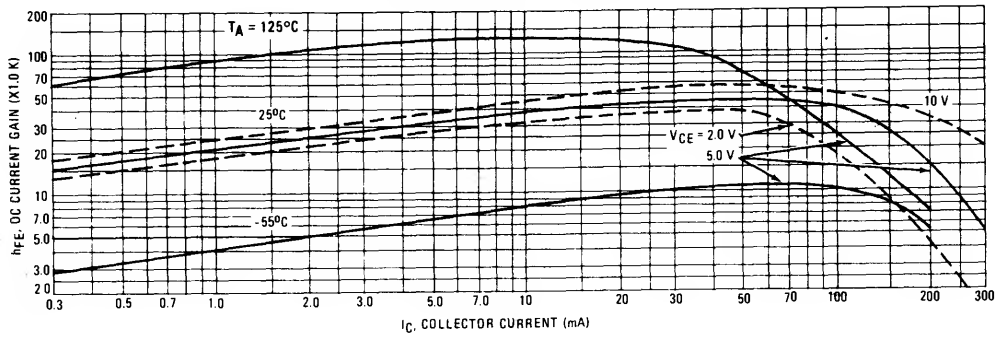

FIGURE 2 — "ON" VOLTAGE

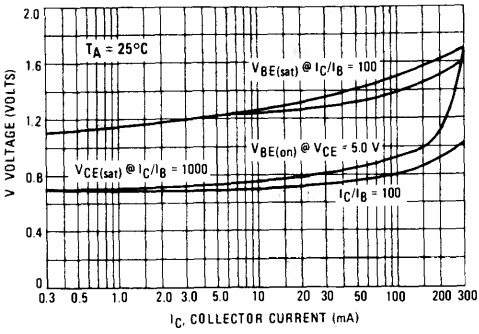

FIGURE 3 — COLLECTOR SATURATION REGION

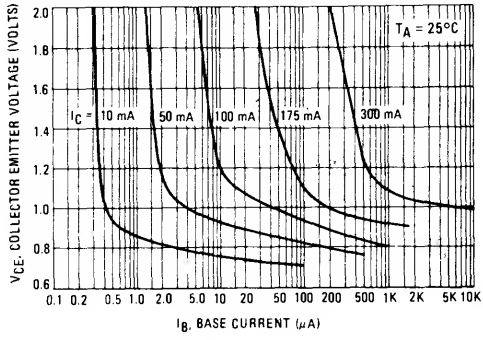

FIGURE 4 — HIGH FREQUENCY CURRENT GAIN

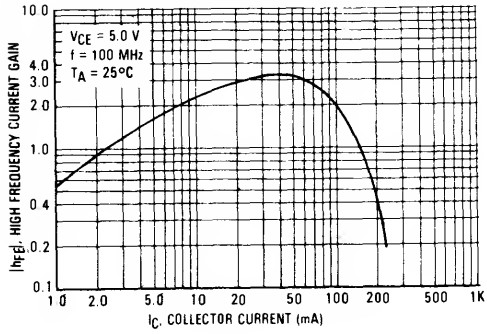

FIGURE 5 — ACTIVE REGION, SAFE OPERATING AREA