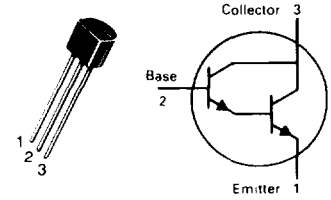
MPSA27

CASE 29-04, STYLE 1
TO-92 (TO-226AA)



DARLINGTON TRANSISTOR

NPN SILICON

MAXIMUM RATINGS

Rating	Symbol	MPS-A25	MPS-A26	MPS-A27	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)	$V_{(BR)CES}$	60	—	—	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	$V_{(BR)CBO}$	60	—	—	Vdc
Collector Cutoff Current (V_{CB} = 30 V, I_E = 0) (V_{CB} = 40 V, I_E = 0) (V_{CB} = 50 V, I_E = 0)	I_{CBO}	—	—	100	nAdc
Collector Cutoff Current (V_{CE} = 30 V, V_{BE} = 0) (V_{CE} = 40 V, V_{BE} = 0) (V_{CE} = 50 V, V_{BE} = 0)	I_{CES}	—	—	500	nAdc
Emitter Cutoff Current (V_{EB} = 10 Vdc)	I_{EBO}	—	—	100	nAdc
ON CHARACTERISTICS(1)					
DC Current Gain (I_C = 10 mA, V_{CE} = 5.0 V) (I_C = 100 mA, V_{CE} = 5.0 V)	h_{FE}	 10,000 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)	$V_{BE(on)}$	—	—	2.0	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Small Signal Current Gain (I_C = 10 mA, V_{CE} = 5.0 V, f = 100 MHz)	h_{fe}	1.25	2.4	—	—

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

FIGURE 1 — DC CURRENT GAIN

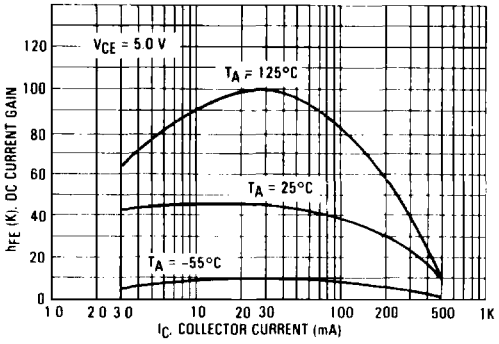


FIGURE 2 — "ON" VOLTAGES

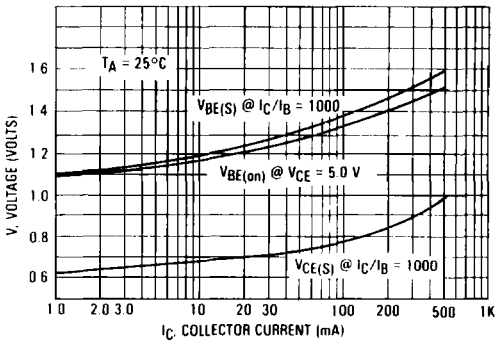


FIGURE 3 — COLLECTOR SATURATION REGION

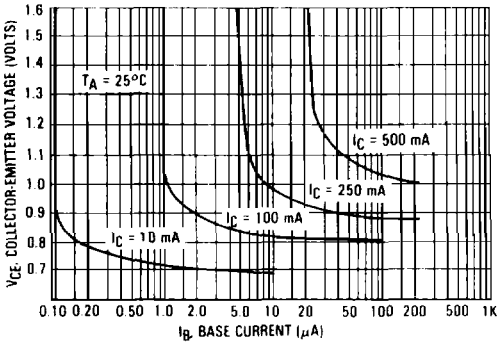


FIGURE 4 — HIGH FREQUENCY CURRENT GAIN

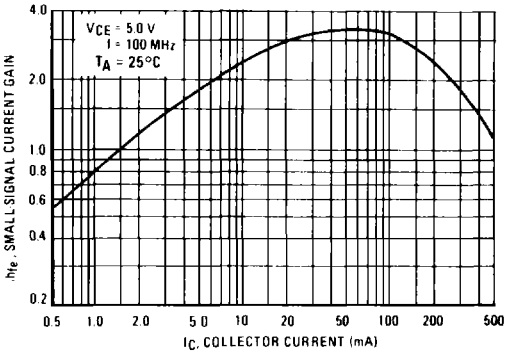


FIGURE 5 — ACTIVE REGION SAFE OPERATING AREA