

# MPSA25 MPSA26 MPSA27

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

DARLINGTON TRANSISTOR

NPN SILICON

## MAXIMUM RATINGS

Rating	Symbol	MPS-A25	MPS-A26	MPS-A27	Unit
Collector-Emitter Voltage	$V_{CE\bar{S}}$	40	50	60	Vdc
Emitter-Base Voltage	$V_{EBO}$	10			Vdc
Collector Current — Continuous	$I_C$	500			mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	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

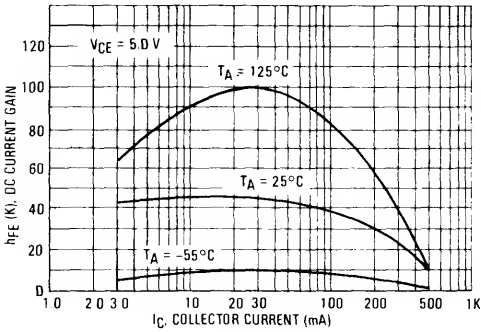
## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Emitter Breakdown Voltage ( $I_C = 100 \mu\text{Adc}, V_{BE} = 0$ )	$V_{(BR)CES}$	MPSA25 40 MPSA26 50 MPSA27 60	— — —	— — —	Vdc
Collector-Base Breakdown Voltage ( $I_C = 100 \mu\text{Adc}, I_E = 0$ )	$V_{(BR)CBO}$	MPSA25 40 MPSA26 50 MPSA27 60	— — —	— — —	Vdc
Collector Cutoff Current ( $V_{CB} = 30 \text{ V}, I_E = 0$ ) ( $V_{CB} = 40 \text{ V}, I_E = 0$ ) ( $V_{CB} = 50 \text{ V}, I_E = 0$ )	$I_{CBO}$	MPSA25 — MPSA26 — MPSA27 —	— — —	100 100 100	nAdc
Collector Cutoff Current ( $V_{CE} = 30 \text{ V}, V_{BE} = 0$ ) ( $V_{CE} = 40 \text{ V}, V_{BE} = 0$ ) ( $V_{CE} = 50 \text{ V}, V_{BE} = 0$ )	$I_{CES}$	MPSA25 — MPSA26 — MPSA27 —	— — —	500 500 500	nAdc
Emitter Cutoff Current ( $V_{BE} = 10 \text{ Vdc}$ )	$I_{EBO}$	—	—	100	nAdc
<b>ON CHARACTERISTICS(1)</b>					
DC Current Gain ( $I_C = 10 \text{ mA}, V_{CE} = 5.0 \text{ V}$ ) ( $I_C = 100 \text{ mA}, V_{CE} = 5.0 \text{ V}$ )	$h_{FE}$	10,000 10,000	— —	— —	—
Collector-Emitter Saturation Voltage ( $I_C = 100 \text{ mA}, I_B = 0.1 \text{ mAdc}$ )	$V_{CE(sat)}$	—	—	1.5	Vdc
Base-Emitter On Voltage ( $I_C = 100 \text{ mA}, V_{CE} = 5.0 \text{ Vdc}$ )	$V_{BE(on)}$	—	—	2.0	Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
Small Signal Current Gain ( $I_C = 10 \text{ mA}, V_{CE} = 5.0 \text{ V}, f = 100 \text{ MHz}$ )	$h_{fe}$	1.25	2.4	—	—

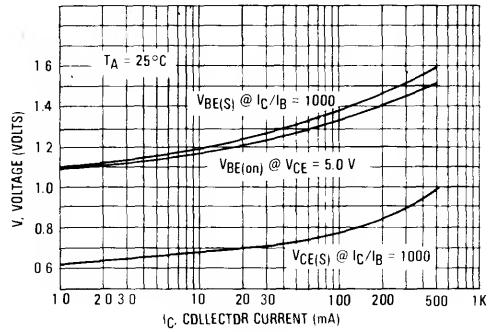
(1) Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

**MPSA25, MPSA26, MPSA27**

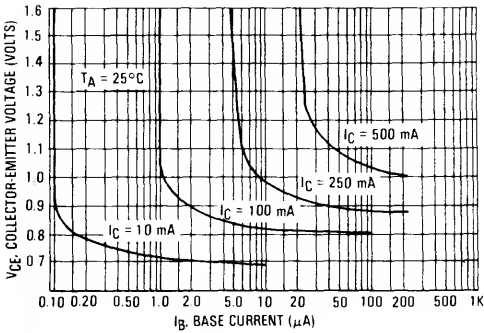
**FIGURE 1 — DC CURRENT GAIN**



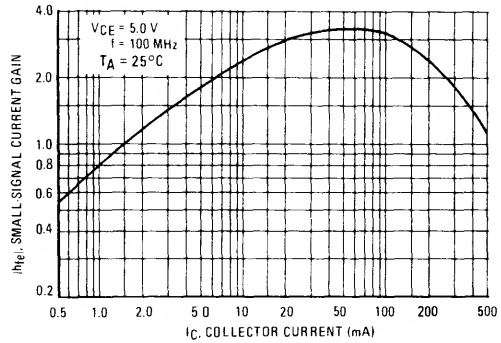
**FIGURE 2 — "ON" VOLTAGES**



**FIGURE 3 — COLLECTOR SATURATION REGION**



**FIGURE 4 — HIGH FREQUENCY CURRENT GAIN**



**FIGURE 5 — ACTIVE REGION SAFE OPERATING AREA**

