

**MAXIMUM RATINGS**

Rating	Symbol	MPS-A16	MPS-A17	Unit
Collector-Emitter Voltage	$V_{CEO}$	40		Vdc
Emitter-Base Voltage	$V_{EBO}$	12	15	Vdc
Collector Current — Continuous	$I_C$	100		mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	350		mW
		2.8		mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.0		Watt
		8.0		mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150		$^\circ\text{C}$

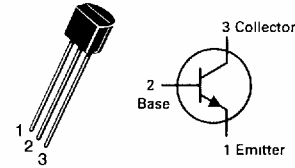
**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	$^\circ\text{C/W}$

# MPSA16

# MPSA17★

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

**CHOPPER TRANSISTORS**

**NPN SILICON**

★This is a Motorola  
designated preferred device.

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

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage ( $I_C = 1.0\text{ mAdc}, I_B = 0$ )	$V_{(BR)CEO}$	40	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 0.1\text{ mAdc}, I_C = 0$ )	$V_{(BR)EBO}$	12 15	—	Vdc
				MPS-A16 MPS-A17
Collector Cutoff Current ( $V_{CB} = 30\text{ Vdc}, I_E = 0$ )	$I_{CBO}$	—	100	nAdc
Emitter Cutoff Current ( $V_{EB} = 10\text{ Vdc}, I_C = 0$ )	$I_{EBO}$	—	100	nAdc
<b>ON CHARACTERISTICS</b>				
DC Current Gain ( $I_C = 5.0\text{ mAdc}, V_{CE} = 10\text{ Vdc}$ )	$h_{FE}$	200	600	—
Collector-Emitter Saturation Voltage ( $I_C = 10\text{ mAdc}, I_B = 1.0\text{ mAdc}$ )	$V_{CE(sat)}$	—	0.25	Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>				
Current-Gain — Bandwidth Product ( $I_C = 5.0\text{ mAdc}, V_{CE} = 10\text{ Vdc}, f = 100\text{ MHz}$ )	$f_T$	100 80	—	MHz
				MPS-A16 MPS-A17
Output Capacitance ( $V_{CB} = 10\text{ Vdc}, I_E = 0, f = 1.0\text{ MHz}$ )	$C_{obo}$	—	4.0	pF

FIGURE 1 – DC CURRENT GAIN

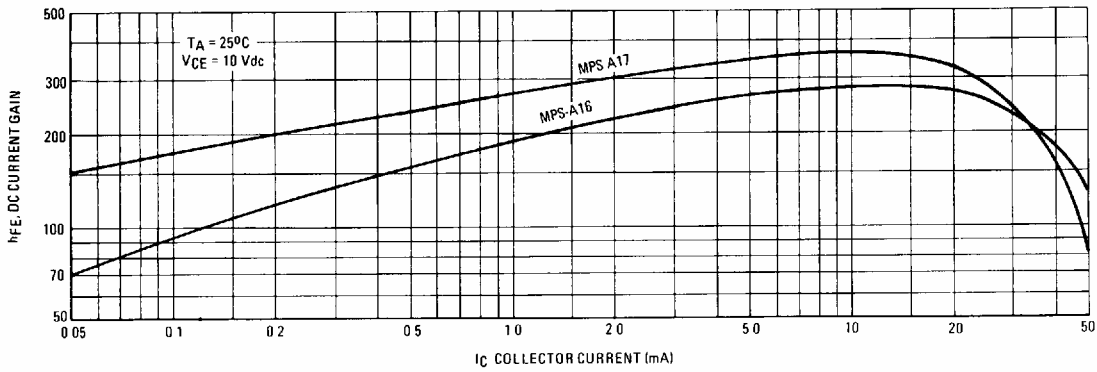


FIGURE 2 – SMALL SIGNAL CURRENT GAIN

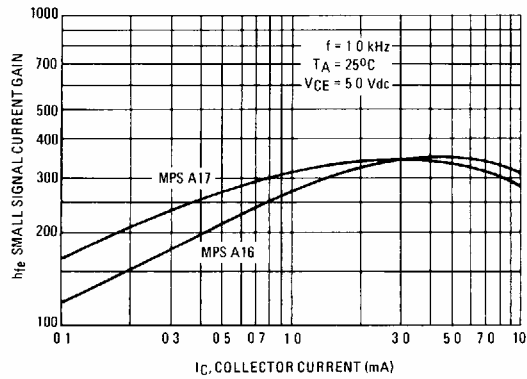


FIGURE 3 – SATURATION AND ON VOLTAGES

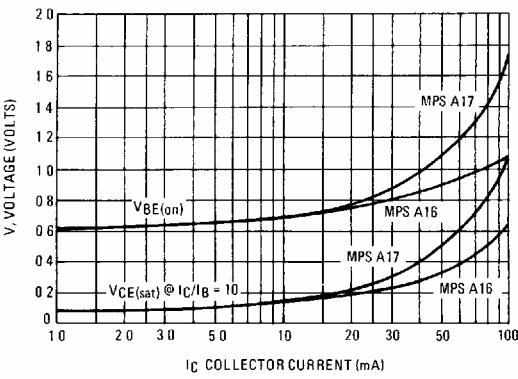


FIGURE 4 – CURRENT-GAIN-BANDWIDTH PRODUCT

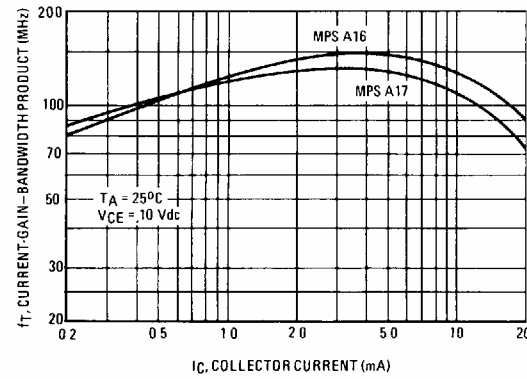


FIGURE 5 – OUTPUT CAPACITANCE

