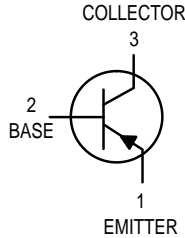


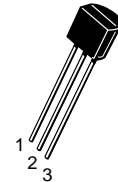
High Voltage Transistors

PNP Silicon



MPSA92*
MPSA93

*Motorola Preferred Device



CASE 29-11, STYLE 1
TO-92 (TO-226AA)

MAXIMUM RATINGS

Rating	Symbol	MPSA92	MPSA93	Unit
Collector–Emitter Voltage	V_{CEO}	-300	-200	Vdc
Collector–Base Voltage	V_{CBO}	-300	-200	Vdc
Emitter–Base Voltage	V_{EBO}	-5.0		Vdc
Collector Current — Continuous	I_C	-500		mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625	5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5	12	Watts 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	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ⁽¹⁾ ($I_C = -1.0$ mAdc, $I_B = 0$)	MPSA92 MPSA93	$V_{(BR)CEO}$	-300 -200	— —	Vdc
Collector–Base Breakdown Voltage ($I_C = -100$ μAdc , $I_E = 0$)	MPSA92 MPSA93	$V_{(BR)CBO}$	-300 -200	— —	Vdc
Emitter–Base Breakdown Voltage ($I_E = -100$ μAdc , $I_C = 0$)		$V_{(BR)EBO}$	-5.0	—	Vdc
Collector Cutoff Current ($V_{CB} = -200$ Vdc, $I_E = 0$) ($V_{CB} = -160$ Vdc, $I_E = 0$)	MPSA92 MPSA93	I_{CBO}	— —	-0.25 -0.25	μAdc
Emitter Cutoff Current ($V_{EB} = -3.0$ Vdc, $I_C = 0$)		I_{EBO}	—	-0.1	μAdc

1. Pulse Test: Pulse Width ≤ 300 μs , Duty Cycle $\leq 2.0\%$.

Preferred devices are Motorola recommended choices for future use and best overall value.

REV 1

MPSA92 MPSA93

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

Characteristic		Symbol	Min	Max	Unit
ON CHARACTERISTICS(1)					
DC Current Gain ($I_C = -1.0\text{ mAdc}$, $V_{CE} = -10\text{ Vdc}$) ($I_C = -10\text{ mAdc}$, $V_{CE} = -10\text{ Vdc}$) ($I_C = -30\text{ mAdc}$, $V_{CE} = -10\text{ Vdc}$)	Both Types	h_{FE}	25	—	—
	Both Types		40	—	
	MPSA92 MPSA93		25 25	— —	
Collector–Emitter Saturation Voltage ($I_C = -20\text{ mAdc}$, $I_B = -2.0\text{ mAdc}$)	MPSA92 MPSA93	$V_{CE(\text{sat})}$	— —	-0.5 -0.4	Vdc
Base–Emitter Saturation Voltage ($I_C = -20\text{ mAdc}$, $I_B = -2.0\text{ mAdc}$)		$V_{BE(\text{sat})}$	—	-0.9	Vdc
SMALL–SIGNAL CHARACTERISTICS					
Current–Gain — Bandwidth Product ($I_C = -10\text{ mAdc}$, $V_{CE} = -20\text{ Vdc}$, $f = 100\text{ MHz}$)		f_T	50	—	MHz
Collector–Base Capacitance ($V_{CB} = -20\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	MPSA92 MPSA93	C_{cb}	— —	6.0 8.0	pF

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

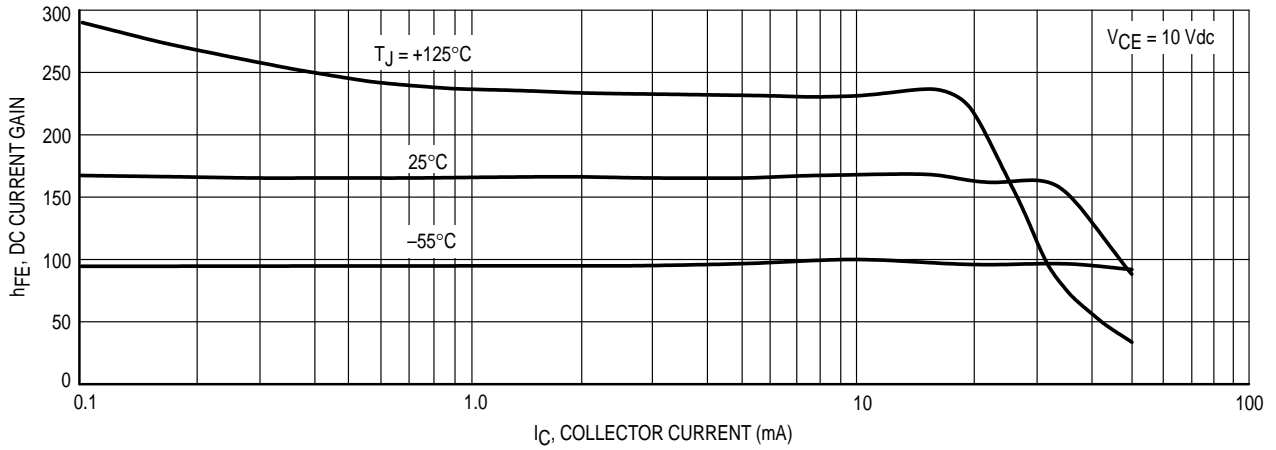


Figure 1. DC Current Gain

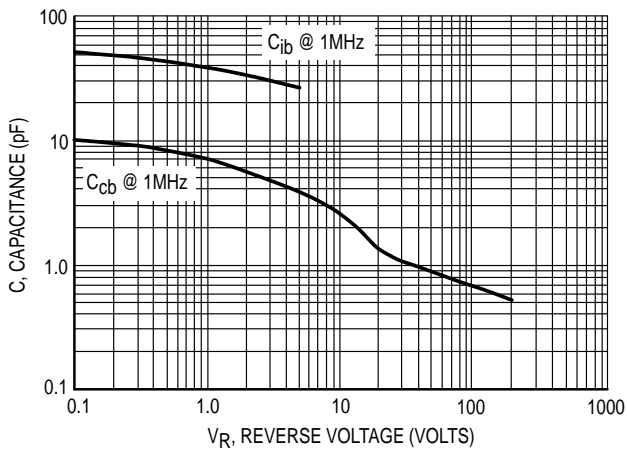


Figure 2. Capacitance

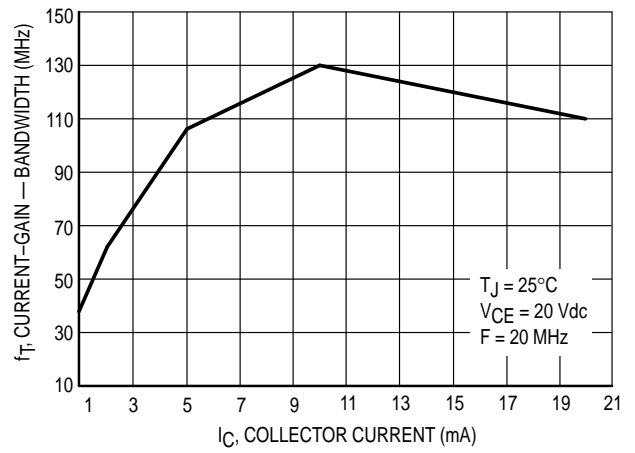


Figure 3. Current-Gain — Bandwidth

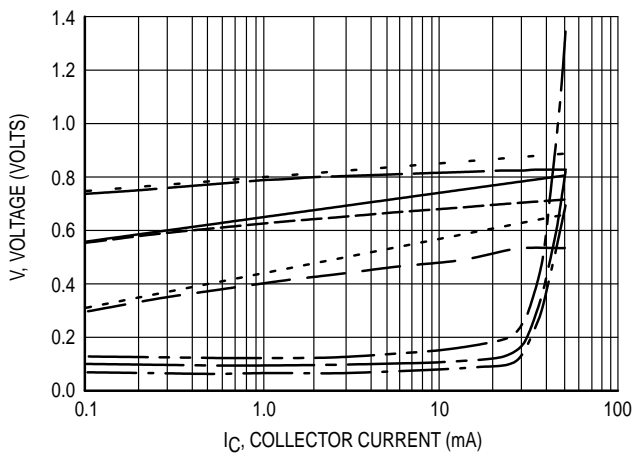
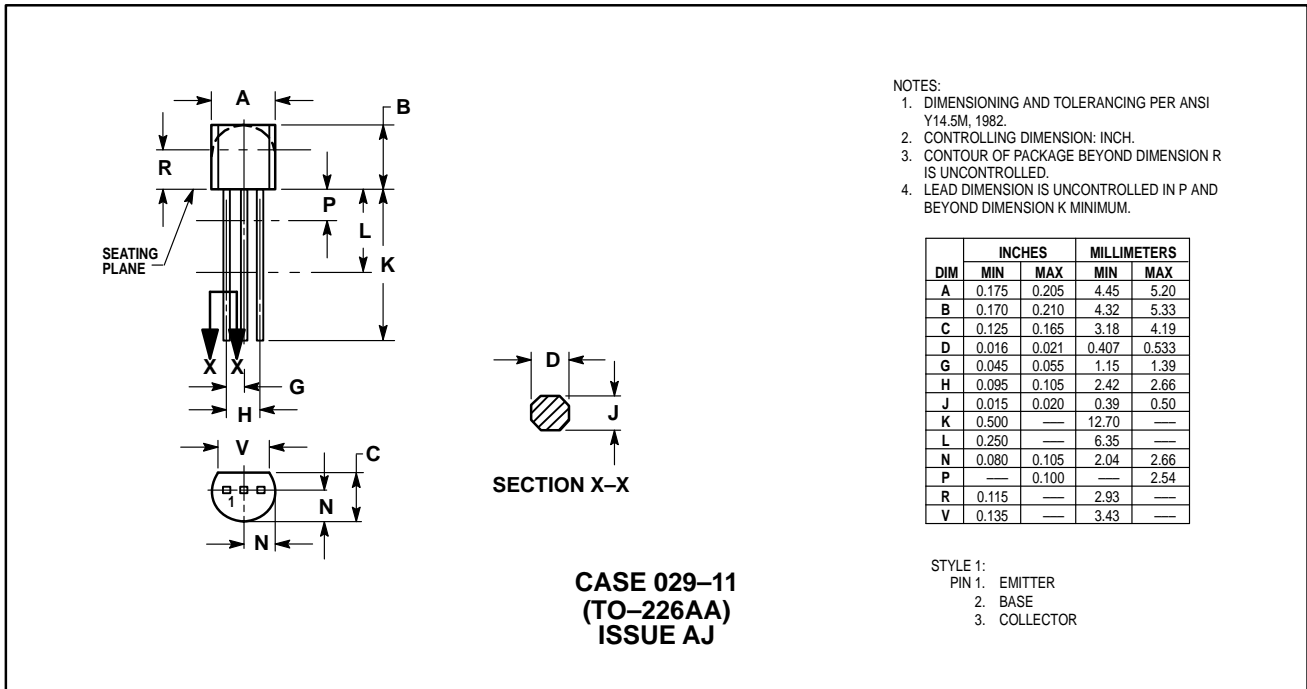



Figure 4. "ON" Voltages

PACKAGE DIMENSIONS



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