

**FAIRCHILD**  
A Schlumberger Company

**MPSA10** T-29-23  
NPN Amplifier Transistor

•  $V_{CE0} \dots 40 \text{ V (Min)}$

**PACKAGE**  
MPSA10 TO-92

**ABSOLUTE MAXIMUM RATINGS (Note 1)**

**Temperatures**  
Storage Temperature  $-55^{\circ}\text{C}$  to  $150^{\circ}\text{C}$   
Operating Junction Temperature  $150^{\circ}\text{C}$

**Power Dissipation (Notes 2 & 3)**  
Total Dissipation at  
25°C Ambient Temperature 0.625 W  
25°C Case Temperature 1.0 W

**Voltages & Currents**  
 $V_{CE0}$  Collector to Emitter Voltage 40 V  
(Note 4)  
 $V_{EB0}$  Emitter to Base Voltage 4.0 V  
 $I_C$  Collector Current (Peak) 100 mA

**ELECTRICAL CHARACTERISTICS (25°C Ambient Temperature unless otherwise noted) (Note 6)**

SYMBOL	CHARACTERISTIC	MIN	MAX	UNITS	TEST CONDITIONS
$BV_{CE0}$	Collector to Emitter Breakdown Voltage	40		V	$I_C = 1.0 \text{ mA}, I_B = 0$
$BV_{EB0}$	Emitter to Base Breakdown Voltage	4.0		V	$I_E = 100 \mu\text{A}, I_C = 0$
$I_{CBO}$	Collector Cutoff Current		100	nA	$V_{CB} = 30 \text{ V}, I_E = 0$
$h_{FE}$	DC Current Gain (Note 5)	40	400		$I_C = 5.0 \mu\text{A}, V_{CE} = 10 \text{ V}$
$f_T$	Current Gain Bandwidth Product	125		MHz	$I_C = 5.0 \text{ mA}, V_{CE} = 10 \text{ V}, f = 100 \text{ MHz}$
$C_{obo}$	Output Capacitance		4.0	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 100 \text{ MHz}$

**NOTES:**

- These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
- These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- These ratings give a maximum junction temperature of  $150^{\circ}\text{C}$  and junction-to-case thermal resistance of  $125^{\circ}\text{C/W}$  (derating factor of  $8.0 \text{ mW}^{\circ}\text{C}$ ); junction-to-ambient thermal resistance of  $200^{\circ}\text{C/W}$  (derating factor of  $5.0 \text{ mW}^{\circ}\text{C}$ ).
- Rating refers to a high current point where collector to emitter voltage is lowest.
- Pulse conditions: length =  $300 \mu\text{s}$ ; duty cycle = 1%.
- For product family characteristic curves, refer to Curve Set T144.