

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CE0}$	80	Vdc
Emitter-Base Voltage	$V_{EBO}$	4.0	Vdc
Collector Current — Continuous	$I_C$	100	mAdc
Total Device Dissipation (at $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$ )	$P_D$	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation (at $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$ )	$P_D$	1.5 12	Watt mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

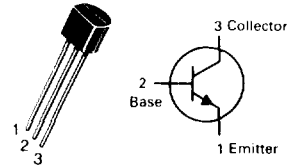
### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}(1)$	200	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C/W}$

(1)  $R_{\theta JA}$  is measured with the device soldered into a typical printed circuit board.

## MPSH04

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



AMPLIFIER TRANSISTOR

NPN SILICON

### 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(2) ( $I_C = 1.0 \text{ mAdc}, I_B = 0$ )	$V_{(BR)CEO}$	80	—	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 100 \mu\text{Adc}, I_E = 0$ )	$V_{(BR)CBO}$	80	—	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 100 \mu\text{Adc}, I_C = 0$ )	$V_{(BR)EBO}$	4.0	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 60 \text{ Vdc}, I_E = 0$ )	$I_{CBO}$	—	—	50	nAdc
Emitter Cutoff Current ( $V_{EB} = 3.0 \text{ Vdc}, I_C = 0$ )	$I_{EBO}$	—	—	50	nAdc
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 1.5 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ )	$h_{FE}$	30	—	120	—
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 ( $I_C = 1.5 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 100 \text{ MHz}$ )	$f_T$	80	—	—	MHz
Collector-Base Capacitance ( $V_{CB} = 10 \text{ Vdc}, f = 1.0 \text{ MHz}$ )	$C_{cb}$	—	—	1.6	pF
Output Admittance ( $I_C = 1.5 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 1.0 \text{ kHz}$ )	$h_{oe}$	—	—	5.0	$\mu\text{mhos}$
Noise Figure ( $I_C = 1.5 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, R_S = 50 \text{ ohms}, f = 1.0 \text{ MHz}$ )	NF	—	—	2.0	dB

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