

*New Jersey Semi-Conductor Products, Inc.*

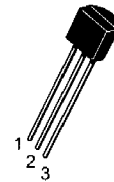
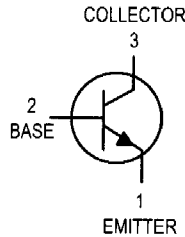
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## Amplifier Transistor

### NPN Silicon

# MPS6571



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

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	20	Vdc
Collector-Base Voltage	$V_{CBO}$	25	Vdc
Emitter-Base Voltage	$V_{EBO}$	3.0	Vdc
Collector Current — Continuous	$I_C$	50	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	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	Typ	Max	Unit
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#### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ( $I_C = 1.0 \text{ mAdc}, I_B = 0$ )	$V_{(BR)CEO}$	20	—	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 100 \mu\text{Adc}, I_E = 0$ )	$V_{(BR)CBO}$	25	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 20 \text{ Vdc}, I_E = 0$ )	$I_{CBO}$	—	—	50	nAdc
Emitter Cutoff Current ( $V_{EB(off)} = 3.0 \text{ Vdc}, I_C = 0$ )	$I_{EBO}$	—	—	50	nAdc



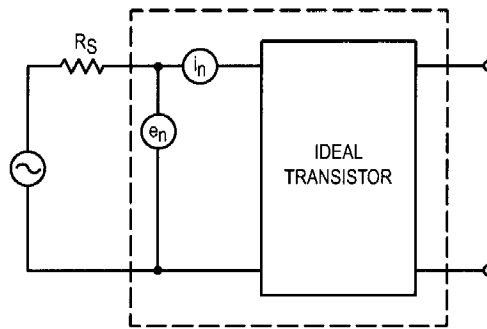
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Quality Semi-Conductors

**MPS6571**

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 100 \mu\text{A}$ , $V_{CE} = 5.0 \text{ Vdc}$ )	$h_{FE}$	250	—	1000	—
Collector–Emitter Saturation Voltage ( $I_C = 10 \text{ mA}$ , $I_B = 1.0 \text{ mA}$ )	$V_{CE(\text{sat})}$	—	—	0.5	Vdc
Base–Emitter On Voltage ( $I_C = 10 \text{ mA}$ , $V_{CE} = 5.0 \text{ Vdc}$ )	$V_{BE(\text{on})}$	—	—	0.8	Vdc
<b>SMALL–SIGNAL CHARACTERISTICS</b>					
Current–Gain — Bandwidth Product ( $I_C = 500 \mu\text{A}$ , $V_{CE} = 5.0 \text{ Vdc}$ , $f = 20 \text{ MHz}$ )	$f_T$	50	175	—	MHz
Output Capacitance ( $V_{CB} = 5.0 \text{ Vdc}$ , $I_E = 0$ , $f = 1.0 \text{ MHz}$ )	$C_{obo}$	—	—	4.5	pF
Noise Figure ( $I_C = 100 \mu\text{A}$ , $V_{CE} = 5.0 \text{ Vdc}$ , $R_S = 10 \text{ k}\Omega$ , $f = 100 \text{ Hz}$ )	NF	—	1.2	—	dB



**Figure 1. Transistor Noise Model**