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MAXIMUM RATINGS

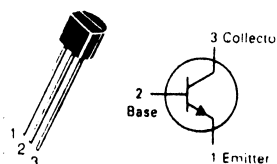
Rating	Symbol	2N5088	2N5089	Unit
Collector-Emitter Voltage	V_{CE}	30	25	Vdc
Collector-Base Voltage	V_{CB}	35	30	Vdc
Emitter-Base Voltage	V_{EB}	4.5		Vdc
Collector Current — Continuous	I_C	50		mA dc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0		mW mW/°C
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12		Watt mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}(1)$	357	°C/W

2N5088
2N5089

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



AMPLIFIER TRANSISTORS

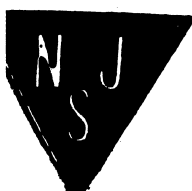
NPN SILICON

Refer to MPSA18 for graphs.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(2) ($I_C = 1.0$ mA dc, $I_E = 0$)	$V_{(BR)CEO}$	30 25	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 100$ μ A dc, $I_E = 0$)	$V_{(BR)CBO}$	35 30	—	Vdc
Collector Cutoff Current ($V_{CB} = 20$ Vdc, $I_E = 0$) ($V_{CB} = 15$ Vdc, $I_E = 0$)	I_{CBO}	—	50 50	nA dc
Emitter Cutoff Current ($V_{EB}(\text{off}) = 3.0$ Vdc, $I_C = 0$) ($V_{EB}(\text{off}) = 4.5$ Vdc, $I_C = 0$)	I_{EBO}	—	50 100	nA dc
ON CHARACTERISTICS				
DC Current Gain ($I_C = 100$ μ A dc, $V_{CE} = 5.0$ Vdc)	h_{FE}	300	900	—
($I_C = 1.0$ mA dc, $V_{CE} = 5.0$ Vdc)		400	1200	
($I_C = 10$ mA dc, $V_{CE} = 5.0$ Vdc)(2)		350 450	—	
($I_C = 10$ mA dc, $V_{CE} = 5.0$ Vdc)(2)		300 400	—	
Collector-Emitter Saturation Voltage ($I_C = 10$ mA dc, $I_E = 1.0$ mA dc)	$V_{CE(\text{sat})}$	—	0.5	Vdc
Base-Emitter On Voltage ($I_C = 10$ mA dc, $V_{CE} = 5.0$ Vdc)(2)	$V_{BE(\text{on})}$	—	0.8	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product ($I_C = 500$ μ A dc, $V_{CE} = 5.0$ Vdc, $f = 20$ MHz)	f_T	50	—	MHz
Collector-Base Capacitance ($V_{CB} = 5.0$ Vdc, $I_E = 0$, $f = 100$ kHz)	C_{cb}	—	4.0	pF
Emitter-Base Capacitance ($V_{BE} = 0.5$ Vdc, $I_C = 0$, $f = 100$ kHz)	C_{eb}	—	10	pF
Small-Signal Current Gain ($I_C = 1.0$ mA dc, $V_{CE} = 5.0$ Vdc, $f = 1.0$ kHz)	h_{fe}	350 450	1400 1800	—
Noise Figure ($I_C = 100$ μ A dc, $V_{CE} = 5.0$ Vdc, $R_S = 10$ kohms, $f = 10$ Hz to 15.7 kHz)	NF	—	3.0 2.0	dB

(1) $R_{\theta JA}$ is measured with the device soldered into a typical printed circuit board.
(2) Pulse Test: Pulse Width ≤ 300 μ s, Duty Cycle $\leq 2.0\%$.



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