

# MJE205 (SILICON) MJE205K

## MEDIUM-POWER NPN SILICON TRANSISTORS

... for use as an output device in complementary audio amplifiers up to 20-Watts music power per channel.

- High DC Current Gain —  $h_{FE} = 25-100 @ I_C = 2.0 \text{ A}$
- Thermopad High-Efficiency Compact Package
- Complementary to PNP MJE 105, MJE105K
- Choice of Packages — MJE205-Case 90  
MJE205K-Case 199

## 5 AMPERE POWER TRANSISTORS

NPN SILICON

50 VOLTS  
65 WATTS

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	50	Vdc
Collector-Base Voltage	$V_{CB}$	50	Vdc
Emitter-Base Voltage	$V_{EB}$	4.0	Vdc
Collector Current	$I_C$	5.0	Adc
Base Current	$I_B$	2.5	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_{DT}$	65 0.522	Watts W/ $^\circ\text{C}$
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 Case	$\theta_{JC}$	1.92	$^\circ\text{C/W}$

† Safe Area Curves are indicated by Figure 1. Both limits are applicable and must be observed.

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

Characteristic	Symbol	Min	Max	Unit
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#### OFF CHARACTERISTICS

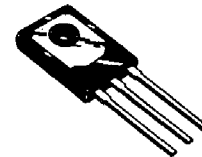
Collector-Emitter Breakdown Voltage † ( $I_C = 100 \text{ mAdc}, I_B = 0$ )	$BV_{CEO}^\ddagger$	50	—	Vdc
Collector Cutoff Current ( $V_{CB} = 50 \text{ Vdc}, I_E = 0$ ) ( $V_{CB} = 50 \text{ Vdc}, I_E = 0, T_C = 150^\circ\text{C}$ )	$I_{CBO}$	—	0.1 2.0	mAdc
Emitter Cutoff Current ( $V_{BE} = 4.0 \text{ Vdc}, I_C = 0$ )	$I_{EBO}$	—	1.0	mAdc

#### ON CHARACTERISTICS

DC Current Gain ( $I_C = 2.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ )	$h_{FE}$	25	100	—
Base-Emitter Voltage ( $I_C = 2.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ )	$V_{BE}$	—	1.2	Vdc

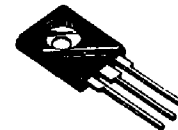
‡ Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

MJE 205

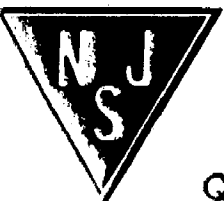


CASE 90-05

MJE205K

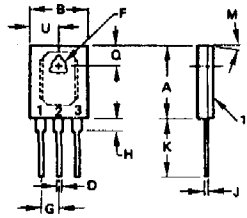


CASE 199-04

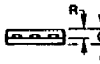


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MJE205



STYLE 2:  
PIN 1. EMITTER  
2. COLLECTOR  
3. BASE

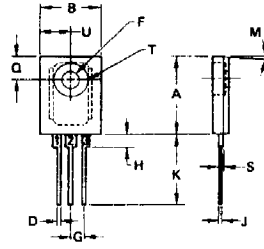


DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.13	16.38	0.635	0.646
B	12.57	12.83	0.495	0.506
C	3.18	3.43	0.125	0.135
D	1.08	1.24	0.043	0.049
F	3.51	3.76	0.138	0.148
G	4.22 BSC		0.166 BSC	
H	2.67	2.92	0.105	0.115
J	0.813	0.864	0.032	0.034
K	15.11	16.38	0.595	0.646
M	90 TYP		90 TYP	
Q	4.70	4.95	0.185	0.195
R	1.91	2.16	0.075	0.085
U	6.22	6.48	0.245	0.255

NOTE:  
1. LEADS WITHIN .005" RAD OF TRUE POSITION (TP) AT MMC

CASE 90-05

MJE205K



STYLE 1:  
PIN 1. BASE  
2. COLLECTOR  
3. EMITTER



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.08	16.33	0.633	0.643
B	12.57	12.83	0.495	0.505
C	3.18	3.43	0.125	0.135
D	0.51	0.76	0.020	0.030
F	3.61	3.86	0.142	0.152
G	2.54 BSC		0.100 BSC	
H	2.67	2.92	0.105	0.115
J	0.43	0.69	0.017	0.027
K	14.73	14.99	0.580	0.590
L	2.78	2.41	0.085	0.095
M	30 TYP		30 TYP	
N	1.47	1.73	0.058	0.068
Q	4.78	5.03	0.188	0.198
R	1.81	2.16	0.075	0.085
S	0.81	0.86	0.032	0.034
T	6.99	7.24	0.275	0.285
U	6.22	6.48	0.245	0.255

1. DIM "G" IS TO CENTER LINE OF LEADS.

CASE 199-04