

MJE220 THRU MJE225

**NPN SILICON
POWER TRANSISTOR**



TO-126 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR MJE220 series types are NPN silicon power transistors, manufactured by the epitaxial-base process, designed for general purpose amplifier and switching applications.

MARKING: FULL PART NUMBER

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$)

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Peak Collector Current
Continuous Base Current
Power Dissipation
Power Dissipation ($T_C=25^\circ\text{C}$)
Operating and Storage Junction Temperature
Thermal Resistance
Thermal Resistance

SYMBOL	MJE220	MJE223	UNITS
	MJE221	MJE224	
	<u>MJE222</u>	<u>MJE225</u>	
V_{CB0}	60	80	V
V_{CE0}	40	60	V
V_{EB0}		7.0	V
I_C		4.0	A
I_{CM}		8.0	A
I_B		1.0	A
P_D		1.5	W
P_D		15	W
T_J, T_{stg}		-65 to +150	$^\circ\text{C}$
θ_{JA}		83.4	$^\circ\text{C/W}$
θ_{JC}		8.34	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CBO}	$V_{CB}=\text{Rated } V_{CB0}$			100	nA
I_{CBO}	$V_{CB}=\text{Rated } V_{CB0}, T_C=125^\circ\text{C}$			100	μA
I_{EBO}	$V_{EB}=7.0\text{V}$			100	nA
BV_{CE0}	$I_C=10\text{mA}$ (MJE220, MJE221, MJE222)	40			V
BV_{CE0}	$I_C=10\text{mA}$ (MJE223, MJE224, MJE225)	60			V
$V_{CE}(\text{SAT})$	$I_C=500\text{mA}, I_B=50\text{mA}$			0.3	V
$V_{CE}(\text{SAT})$	$I_C=1.0\text{A}, I_B=100\text{mA}$ (MJE221, MJE224)			0.6	V
$V_{CE}(\text{SAT})$	$I_C=2.0\text{A}, I_B=200\text{mA}$ (MJE220, MJE223)			0.8	V
$V_{CE}(\text{SAT})$	$I_C=4.0\text{A}, I_B=1.0\text{A}$			2.5	V
$V_{BE}(\text{SAT})$	$I_C=2.0\text{A}, I_B=200\text{mA}$			1.8	V
$V_{BE}(\text{ON})$	$V_{CE}=1.0\text{V}, I_C=500\text{mA}$			1.5	V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=200\text{mA}$ (MJE220, MJE223)	40		200	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=200\text{mA}$ (MJE221, MJE224)	40		150	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=200\text{mA}$ (MJE222, MJE225)	25			
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.0\text{A}$ (MJE221, MJE224)	20			
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.0\text{A}$ (MJE222, MJE225)	10			
h_{FE}	$V_{CE}=1.0\text{V}, I_C=2.0\text{A}$ (MJE220, MJE223)	20			
f_T	$V_{CE}=10\text{V}, I_C=100\text{mA}, f=10\text{MHz}$		10		MHz
C_{ob}	$V_{CE}=10\text{V}, I_E=0, f=100\text{kHz}$			50	pF

R2 (26-November 2012)

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TO-126 CASE - MECHANICAL OUTLINE



LEAD CODE:

- 1) Emitter
- 2) Collector
- 3) Base

MARKING:

FULL PART NUMBER

SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.094	0.110	2.40	2.80
B	0.050		1.27	
C	0.015	0.030	0.38	0.75
D	0.291	0.335	7.40	8.50
E	0.148		3.75	
F	0.118	0.134	3.00	3.40
G	0.413	0.472	10.50	12.00
H	0.618		15.70	
J	0.024	0.035	0.62	0.90
K	0.089		2.25	
L	0.177		4.50	
M	0.045	0.055	1.14	1.40
N	0.083		2.10	

TO-126 (REV:R3)

R2 (26-November 2012)