

CentralTM Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

MJE220 THRU MJE225

NPN SILICON POWER TRANSISTOR

JEDEC TO-126 CASE

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.

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	MJE220 MJE221 MJE222	MJE223 MJE224 MJE225	UNIT
Collector-Base Voltage	V_{CB0}	60	80	V
Collector-Emitter Voltage	V_{CE0}	40	60	V
Emitter-Base Voltage	V_{EB0}	7.0	7.0	V
Collector Current	I_C	4.0	4.0	A
Collector Current (PEAK)	I_{CM}	8.0	8.0	A
Base Current	I_B	1.0	1.0	A
Power Dissipation	P_D	1.5	1.5	W
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	15	15	W
Operating and Storage Junction Temperature	T_J, T_{STG}	-65 TO +150		$^\circ\text{C}$
Thermal Resistance	θ_{JA}	83.4		$^\circ\text{C/W}$
Thermal Resistance	θ_{JC}	8.34		$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS		MIN	MAX	UNIT
I_{CB0}	$V_{CB}=60\text{V}$	(MJE220, MJE221, MJE222)		0.1	μA
I_{CB0}	$V_{CB}=80\text{V}$	(MJE223, MJE224, MJE225)		0.1	μA
I_{CB0}	$V_{CB}=60\text{V}, T_C=125^\circ\text{C}$	(MJE220, MJE221, MJE222)		0.1	mA
I_{CB0}	$V_{CB}=80\text{V}, T_C=125^\circ\text{C}$	(MJE223, MJE224, MJE225)		0.1	mA
I_{EB0}	$V_{BE}=7.0\text{V}$			0.1	μA
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 TYP		MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$			50	pF