

# Central<sup>TM</sup> Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

MJE240 THRU MJE244 NPN  
MJE250 THRU MJE254 PNP

COMPLEMENTARY SILICON  
POWER TRANSISTORS

JEDEC TO-126 GASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR MJE240, MJE250 series types are complementary silicon power transistors designed for audio amplifier and switching applications.

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

	MJE240, MJE241 MJE242, MJE250 MJE251, MJE252	MJE243, MJE244 MJE253, MJE254
Collector-Base Voltage	80	100
Collector-Emitter Voltage	80	100
Emitter-Base Voltage		7.0
Collector Current		4.0
Collector Current (PEAK)		8.0
Base Current		1.0
Power Dissipation		1.5
Power Dissipation ( $T_C=25^\circ\text{C}$ )		15
Operating and Storage Junction Temperature	$T_J, T_{STG}$	-65 to +150
Thermal Resistance	$\theta_{JA}$	83.4
Thermal Resistance	$\theta_{JC}$	8.34

	SYMBOL			UNIT
Collector-Base Voltage	$V_{CB0}$	80	100	V
Collector-Emitter Voltage	$V_{CE0}$	80	100	V
Emitter-Base Voltage	$V_{EB0}$		7.0	V
Collector Current	$I_C$		4.0	A
Collector Current (PEAK)	$I_{CM}$		8.0	A
Base Current	$I_B$		1.0	A
Power Dissipation	$P_D$		1.5	W
Power Dissipation ( $T_C=25^\circ\text{C}$ )	$P_D$		15	W
Operating and Storage Junction Temperature	$T_J, T_{STG}$		-65 to +150	$^\circ\text{C}$
Thermal Resistance	$\theta_{JA}$		83.4	$^\circ\text{C/W}$
Thermal Resistance	$\theta_{JC}$		8.34	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
$I_{CB0}$	$V_{CB}=80\text{V}$ , (MJE240, 241, 242, 250, 251, 252)		0.1	$\mu\text{A}$
$I_{CB0}$	$V_{CB}=100\text{V}$ , (MJE243, 244, 253, 254)		0.1	$\mu\text{A}$
$I_{CB0}$	$V_{CB}=80\text{V}$ , $T_C=125^\circ\text{C}$ (MJE240, 241, 242, 250, 251, 252)		0.1	mA
$I_{CB0}$	$V_{CB}=100\text{V}$ , $T_C=125^\circ\text{C}$ (MJE243, 244, 253, 254)		0.1	mA
$I_{EB0}$	$V_{BE}=7.0\text{V}$		0.1	$\mu\text{A}$
$BV_{CE0}$	$I_C=10\text{mA}$ , (MJE240, 241, 242, 250, 251, 252)	80		V
$BV_{CE0}$	$I_C=10\text{mA}$ , (MJE243, 244, 253, 254)	100		V
$V_{CE}(\text{SAT})$	$I_C=500\text{mA}$ , $I_B=50\text{mA}$		0.3	V
$V_{CE}(\text{SAT})$	$I_C=1.0\text{A}$ , $I_B=100\text{mA}$ , (MJE241, 243, 251, 253)		0.6	V
$V_{CE}(\text{SAT})$	$I_C=2.0\text{A}$ , $I_B=200\text{mA}$ , (MJE240, 250)		0.8	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
$h_{FE}$	$V_{CE}=1.0\text{V}$ , $I_C=200\text{mA}$ , (MJE240, 250)	40	200	
$h_{FE}$	$V_{CE}=1.0\text{V}$ , $I_C=200\text{mA}$ , (MJE241, 251)	40	180	
$h_{FE}$	$V_{CE}=1.0\text{V}$ , $I_C=200\text{mA}$ , (MJE243, 253)	40	180	
$h_{FE}$	$V_{CE}=1.0\text{V}$ , $I_C=200\text{mA}$ , (MJE242, 244, 252, 254)	25	-	
$h_{FE}$	$V_{CE}=1.0\text{V}$ , $I_C=1.0\text{A}$ , (MJE241, 251)	20	-	
$h_{FE}$	$V_{CE}=1.0\text{V}$ , $I_C=1.0\text{A}$ , (MJE243, 253)	15	-	
$h_{FE}$	$V_{CE}=1.0\text{V}$ , $I_C=1.0\text{A}$ , (MJE242, 244, 252, 254)	10	-	
$h_{FE}$	$V_{CE}=1.0\text{V}$ , $I_C=2.0\text{A}$ , (MJE240, 250)	15	-	
$f_T$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{A}$ $f=1.0\text{MHz}$	2.0		MHz
$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , $f=0.1\text{MHz}$ , (NPN types)		50	pF
$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , $f=0.1\text{MHz}$ , (PNP types)		70	pF