

CentralTM 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 CASE

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	MJE243, MJE244
MJE242, MJE250	MJE253, MJE254
MJE251, MJE252	

	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	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}	$V_{CB}=80\text{V}$, (MJE240, 241, 242, 250, 251, 252)		0.1	μA
I_{CB0}	$V_{CB}=100\text{V}$, (MJE243, 244, 253, 254)		0.1	μA
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	μA
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