

# New Jersey Semi-Conductor Products, Inc.

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MJE240 THRU MJE244 NPN  
MJE250 THRU MJE254 PNP

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## COMPLEMENTARY SILICON POWER TRANSISTORS

JEDEC TO-126 GASE

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

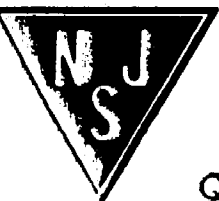
MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$  unless otherwise noted)

MJE240, MJE241 MJE242, MJE250 MJE251, MJE252	MJE243, MJE244 MJE253, MJE254
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	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
$I_{CBO}$	$V_{CB}=80\text{V}$ , (MJE240, 241, 242, 250, 251, 252)		0.1	$\mu\text{A}$
$I_{CBO}$	$V_{CB}=100\text{V}$ , (MJE243, 244, 253, 254)		0.1	$\mu\text{A}$
$I_{CBO}$	$V_{CB}=80\text{V}$ , $T_C=125^\circ\text{C}$ (MJE240, 241, 242, 250, 251, 252)		0.1	mA
$I_{CBO}$	$V_{CB}=100\text{V}$ , $T_C=125^\circ\text{C}$ (MJE243, 244, 253, 254)		0.1	mA
$I_{EBO}$	$V_{BE}=7.0\text{V}$		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 <sub>FE</sub>	$V_{CE}=1.0\text{V}$ , $I_C=200\text{mA}$ , (MJE240, 250)	40	200	
h <sub>FE</sub>	$V_{CE}=1.0\text{V}$ , $I_C=200\text{mA}$ , (MJE241, 251)	40	180	
h <sub>FE</sub>	$V_{CE}=1.0\text{V}$ , $I_C=200\text{mA}$ , (MJE243, 253)	40	180	
h <sub>FE</sub>	$V_{CE}=1.0\text{V}$ , $I_C=200\text{mA}$ , (MJE242, 244, 252, 254)	25	-	
h <sub>FE</sub>	$V_{CE}=1.0\text{V}$ , $I_C=1.0\text{A}$ , (MJE241, 251)	20	-	
h <sub>FE</sub>	$V_{CE}=1.0\text{V}$ , $I_C=1.0\text{A}$ , (MJE243, 253)	15	-	
h <sub>FE</sub>	$V_{CE}=1.0\text{V}$ , $I_C=1.0\text{A}$ , (MJE242, 244, 252, 254)	10	-	
h <sub>FE</sub>	$V_{CE}=1.0\text{V}$ , $I_C=2.0\text{A}$ , (MJE240, 250)	15	-	
f <sub>T</sub>	$V_{CE}=10\text{V}$ , $I_C=1.0\text{A}$ f=1.0MHz	2.0		MHz
$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , f=0.1MHz, (NPN types)		50	pF
$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , f=0.1MHz, (PNP types)		70	pF



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors