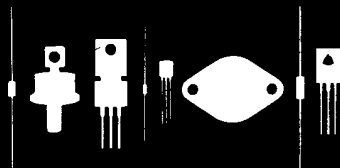


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148-B Lamar Street
West Babylon, New York 11704



MJE13006
MJE13007

NPN SILICON TRANSISTOR

JEDEC TO-220 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR MJE13006, MJE13007 types are Silicon NPN Transistors designed for high voltage, high speed switching applications.

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

	<u>SYMBOL</u>	<u>MJE13006</u>	<u>MJE13007</u>	<u>UNIT</u>
Collector-Emitter Voltage ($V_{BE}=1.5$)	V_{CEV}	600	700	V
Collector-Emitter Voltage	V_{CEO}	300	400	V
Emitter-Base Voltage	V_{EBO}	9.0	9.0	V
Emitter Current	I_E	12	12	A
Emitter Current (Peak)	I_{EM}	24	24	A
Collector Current	I_C	8.0	8.0	A
Collector Current (Peak)	I_{CM}	16	16	A
Base Current	I_B	4.0	4.0	A
Base Current (Peak)	I_{BM}	8.0	8.0	A
Power Dissipation	P_D	80	80	W
Operating and Storage Junction Temp Range	T_J, T_{stg}	-65 TO +150		$^\circ\text{C}$
Thermal Resistance	θ_{JC}	1.56	1.56	$^\circ\text{C/W}$

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

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>MIN</u>	<u>MAX</u>	<u>UNIT</u>
BV_{CEO} (MJE13006)	$I_C=10\text{mA}$	300		V
BV_{CEO} (MJE13007)	$I_C=10\text{mA}$	400		V
I_{CEV}	$V_{CE}=\text{Rated } V_{CEV}, V_{BE}(\text{OFF})=1.5\text{V}$		1.0	mA
I_{CEV}	$V_{CE}=\text{Rated } V_{CEV}, V_{BE}(\text{OFF})=1.5\text{V}, T_C=100^\circ\text{C}$		5.0	mA
I_{EBO}	$V_{EB}=9.0\text{V}$		1.0	mA
$V_{CE}(\text{SAT})$	$I_C=2.0\text{A}, I_B=0.4\text{A}$		1.0	V
$V_{CE}(\text{SAT})$	$I_C=5.0\text{A}, I_B=1.0\text{A}$		2.0	V
$V_{CE}(\text{SAT})$	$I_C=8.0\text{A}, I_B=2.0\text{A}$		3.0	V
$V_{CE}(\text{SAT})$	$I_C=5.0\text{A}, I_B=1.0\text{A}, T_C=100^\circ\text{C}$		3.0	V
$V_{BE}(\text{SAT})$	$I_C=2.0\text{A}, I_B=0.4\text{A}$		1.2	V
$V_{BE}(\text{SAT})$	$I_C=5.0\text{A}, I_B=1.0\text{A}$		1.6	V
$V_{BE}(\text{SAT})$	$I_C=5.0\text{A}, I_B=1.0\text{A}, T_C=100^\circ\text{C}$		1.5	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=2.0\text{A}$	8.0	60	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=5.0\text{A}$	5.0	30	
f_T	$V_{CE}=10\text{V}, I_C=500\text{mA}, f=1.0\text{MHz}$	4.0		MHz
t_{ON}	$V_{CC}=125\text{V}, I_C=5.0\text{A}, I_{B1}=I_{B2}=1.0\text{A}, PW=25\mu\text{s}$		1.6	μs
t_{OFF}	$V_{CC}=125\text{V}, I_C=5.0\text{A}, I_{B1}=I_{B2}=1.0\text{A}, PW=25\mu\text{s}$		3.7	μs
t_{sv}	$V_{CL}=300\text{V}, V_{BE}(\text{OFF})=5.0\text{V}, I_C=5.0\text{A}, I_{B1}=1.0\text{A}, T_C=100^\circ\text{C}$		2.3	μs
t_c	$V_{CL}=300\text{V}, V_{BE}(\text{OFF})=5.0\text{V}, I_C=5.0\text{A}, I_{B1}=1.0\text{A}, T_C=100^\circ\text{C}$		0.7	μs
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$		100 TYP	pF
$I_{s/b}$ (Forward biased)	$V_{CE}=40\text{V}, t=1.0\text{s}$	2.0		A
$I_{s/b}$ (Clamped inductive)	$V_{CE}=300\text{V}, I_{B1}=2.5\text{A}, V_{BE}(\text{OFF})=9\text{V}, t=1.0\text{s}, T_C=100^\circ\text{C}$	8.0		A