

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

MJE170 MJE171 MJE172 PNP
MJE180 MJE181 MJE182 NPN

SILICON COMPLEMENTARY
POWER TRANSISTOR

JEDEC TO-126 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR MJE170, MJE180 series types are complementary Silicon Plastic Power Transistors designed for audio and high speed switching applications.

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

	SYMBOL	MJE170 MJE180	MJE171 MJE181	MJE172 MJE182	UNIT
Collector-Base Voltage	V_{CB0}	60	80	100	V
Collector-Emitter Voltage	V_{CE0}	40	60	80	V
Emitter-Base Voltage	V_{EB0}	7.0	7.0	7.0	V
Collector Current	I_C	3.0	3.0	3.0	A
Collector Current (Peak)	I_{CM}	6.0	6.0	6.0	A
Base Current	I_B	1.0	1.0	1.0	A
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	1.5	1.5	1.5	W
Power Dissipation	P_D	15	15	15	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 TO +150			$^\circ\text{C}$
Thermal Resistance	θ_{JA}	83			$^\circ\text{C/W}$
Thermal Resistance	θ_{JC}	8.3			$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
I_{CB0}	$V_{CB}=\text{Rated } V_{CB0}$		0.1	μA
I_{CB0}	$V_{CB}=\text{Rated } V_{CB0}, T_C=150^\circ\text{C}$		0.1	mA
I_{EB0}	$V_{BE}=7.0\text{V}$		0.1	μA
BV_{CE0}	$I_C=10\text{mA}, (MJE170, MJE180)$	40		V
BV_{CE0}	$I_C=10\text{mA}, (MJE171, MJE181)$	60		V
BV_{CE0}	$I_C=10\text{mA}, (MJE172, MJE182)$	80		V
$V_{CE}(\text{SAT})$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.3	V
$V_{CE}(\text{SAT})$	$I_C=1.5\text{A}, I_B=150\text{mA}$		0.9	V
$V_{CE}(\text{SAT})$	$I_C=3.0\text{A}, I_B=600\text{mA}$		1.7	V
$V_{BE}(\text{SAT})$	$I_C=1.5\text{A}, I_B=150\text{mA}$		1.5	V
$V_{BE}(\text{SAT})$	$I_C=3.0\text{A}, I_B=600\text{mA}$		2.0	V
$V_{BE}(\text{ON})$	$V_{CE}=1.0\text{V}, I_C=500\text{mA}$		1.2	V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	50	250	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=500\text{mA}$	30		
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.5\text{A}$	12		
f_T	$V_{CE}=10\text{V}, I_C=100\text{mA}, f=10\text{MHz}$	50		MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz (NPN)}$		30	pF
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz (PNP)}$		50	pF