

# Central<sup>TM</sup> 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	$\theta_{JA}$	83			$^\circ\text{C/W}$
Thermal Resistance	$\theta_{JC}$	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	$\mu\text{A}$
$I_{CB0}$	$V_{CB}=\text{Rated } V_{CB0}, T_C=150^\circ\text{C}$		0.1	mA
$I_{EB0}$	$V_{BE}=7.0\text{V}$		0.1	$\mu\text{A}$
$BV_{CE0}$	$I_C=10\text{mA}, (MJE170, MJE180)$	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

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

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