

# Central<sup>TM</sup> Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

www.centrasemi.com

**MJ6503**

**PNP SILICON  
POWER TRANSISTOR**

**JEDEC TO-3 CASE**

**DESCRIPTION:** The CENTRAL SEMICONDUCTOR MJ6503 is a silicon PNP transistor designed for high voltage, high speed switching in inductive circuits.

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

	<u>SYMBOL</u>		<u>UNITS</u>
Collector-Emitter Voltage	$V_{CEO}$	400	V
Collector-Emitter Voltage	$V_{CEV}$	450	V
Emitter-Base Voltage	$V_{EBO}$	6.0	V
Continuous Collector Current	$I_C$	8.0	A
Peak Collector Current	$I_{CM}$	16	A
Continuous Base Current	$I_B$	4.0	A
Peak Base Current	$I_{BM}$	8.0	A
Power Dissipation	$P_D$	125	W
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-65 to +200	$^\circ\text{C}$
Thermal Resistance	$\theta_{JC}$	1.4	$^\circ\text{C/W}$

**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>UNITS</u>
$I_{CEV}$	$V_{CE}=450\text{V}, V_{BE}=1.5\text{V}$		0.5	mA
$I_{CEV}$	$V_{CE}=450\text{V}, V_{BE}=1.5\text{V}, T_C=150^\circ\text{C}$		2.5	mA
$I_{CER}$	$V_{CE}=450\text{V}, R_{BE}=50\Omega, T_C=100^\circ\text{C}$		3.0	mA
$I_{EBO}$	$V_{EB}=6.0\text{V}$		1.0	mA
$BV_{CEO}$	$I_C=10\text{mA}$	400		V
$V_{CE(SAT)}$	$I_C=4.0\text{A}, I_B=1.0\text{A}$		1.5	V
$V_{CE(SAT)}$	$I_C=8.0\text{A}, I_B=3.0\text{A}$		5.0	V
$V_{CE(SAT)}$	$I_C=4.0\text{A}, I_B=1.0\text{A}, T_C=100^\circ\text{C}$		2.5	V
$V_{BE(SAT)}$	$I_C=4.0\text{A}, I_B=1.0\text{A}$		1.5	V
$V_{BE(SAT)}$	$I_C=4.0\text{A}, I_B=1.0\text{A}, T_C=100^\circ\text{C}$		1.5	V
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=2.0\text{A}$	15		
$I_{s/b}$	See Figure 1			
RBSOA	See Figure 2			
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{kHz}$	100	400	pF
$t_d$	$V_{CC}=250\text{V}, I_C=4.0\text{A}, I_{B1}=1.0\text{A}$		0.1	$\mu\text{s}$
$t_r$	$V_{CC}=250\text{V}, I_C=4.0\text{A}, I_{B1}=1.0\text{A}$		0.5	$\mu\text{s}$
$t_s$	$V_{CC}=250\text{V}, I_C=4.0\text{A}, I_{B1}=1.0\text{A}, V_{BE(off)}=5.0\text{V}$		2.0	$\mu\text{s}$
$t_f$	$V_{CC}=250\text{V}, I_C=4.0\text{A}, I_{B1}=1.0\text{A}, V_{BE(off)}=5.0\text{V}$		0.5	$\mu\text{s}$

(Continued)

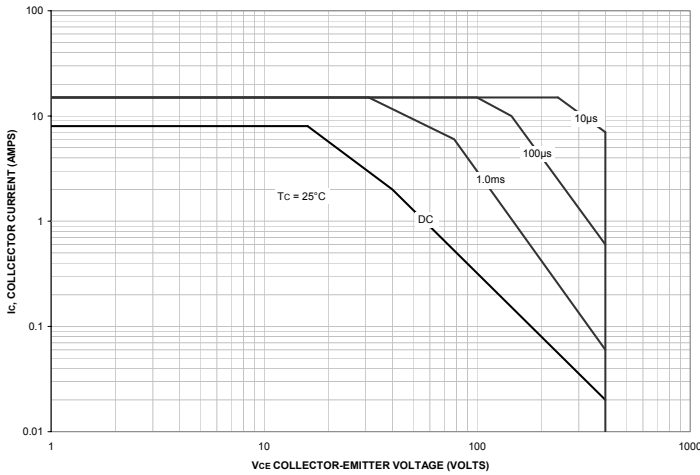


Figure 1. Forward Bias Safe Operating Area

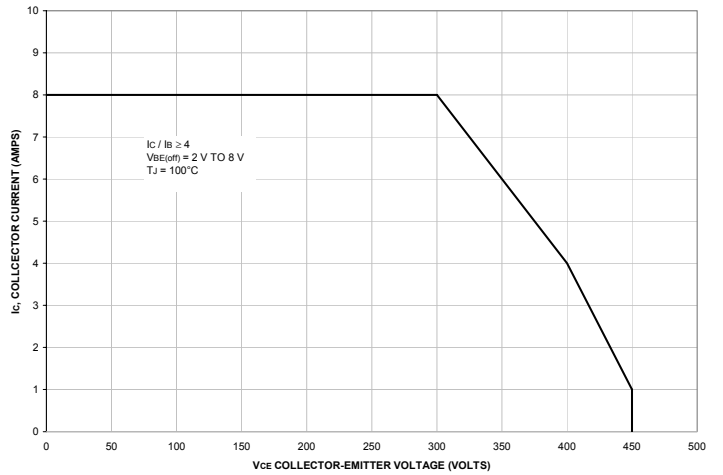
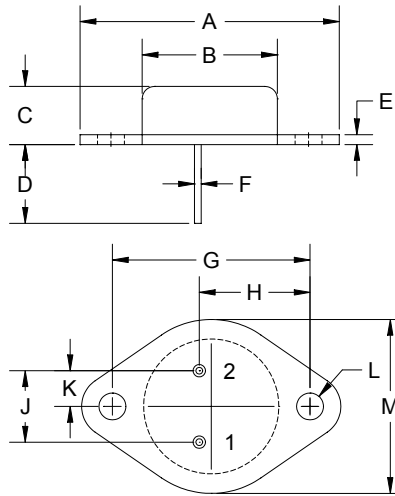


Figure 2. Reverse Bias Switching Safe Operating Area

TO-3 PACKAGE - MECHANICAL OUTLINE



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.516	1.573	38.50	39.96
B (DIA)	0.748	0.875	19.00	22.23
C	0.250	0.450	6.35	11.43
D	0.433	0.516	11.00	13.10
E	0.054	0.065	1.38	1.65
F	0.035	0.045	0.90	1.15
G	1.177	1.197	29.90	30.40
H	0.650	0.681	16.50	17.30
J	0.420	0.440	10.67	11.18
K	0.205	0.225	5.21	5.72
L (DIA)	0.151	0.172	3.84	4.36
M	0.984	1.050	25.00	26.67

TO-3 (REV: R2)

R2

Lead Code

- 1) Base
  - 2) Emitter
- Case) Collector

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