

# 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)

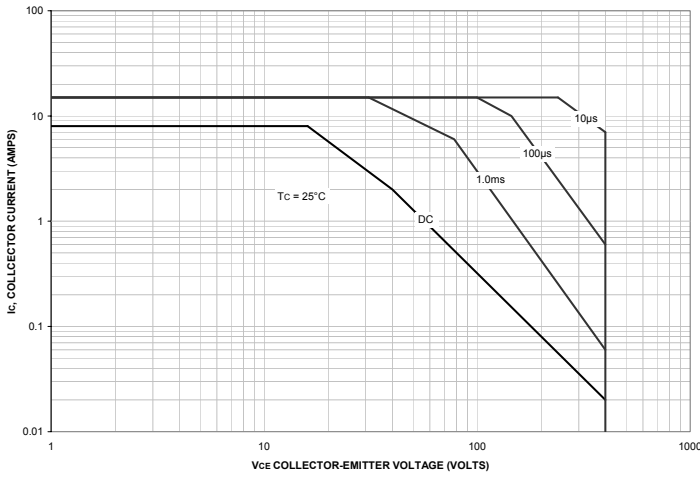


Figure 1. Forward Bias Safe Operating Area

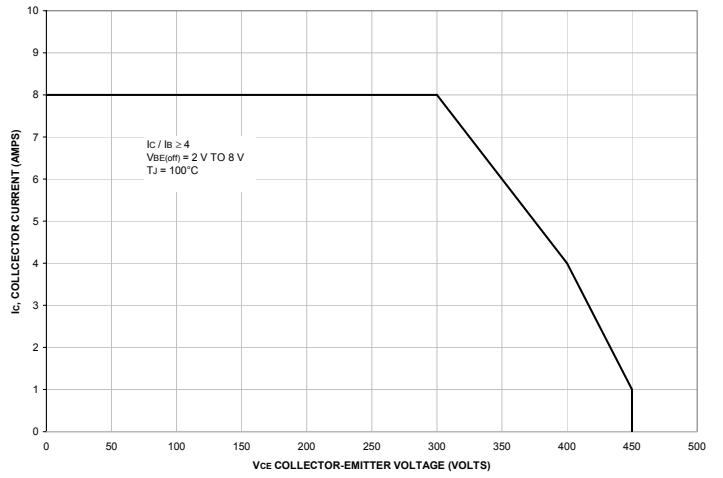
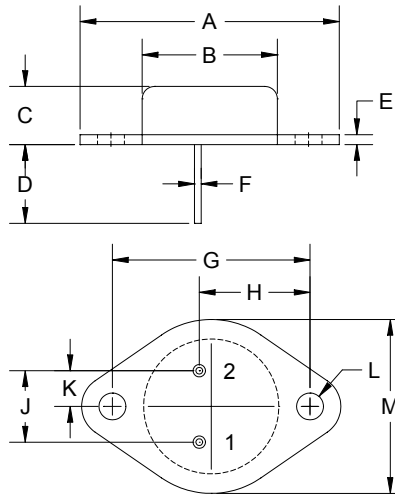


Figure 2. Reverse Bias Switching Safe Operating Area

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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## 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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**Worldwide Distributors:**  
[www.centrasemi.com/wwdistributors](http://www.centrasemi.com/wwdistributors)

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For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: [www.centrasemi.com/terms](http://www.centrasemi.com/terms)



http://www.centrasemi.com

# Product End of Life Notification

<b>PDN ID:</b>	PDN01219
<b>Notification Date:</b>	3/29/22
<b>Last Buy Date:</b>	9/29/22
<b>Last Shipment Date</b>	3/29/23

Summary: The MJ6503 power transistor is discontinued and now classified as End of Life (EOL).

Although Central Semiconductor Corp. makes every effort to continue to produce devices that have been proclaimed EOL (End of Life) by other manufacturers, it is an accepted industry practice to discontinue certain devices when customer demand falls below a minimum level of sustainability. Accordingly, the following product(s) have been transitioned to End of Life status as part of Central's ongoing Product Management Process. Any replacement products are noted below. The effective date for placing last purchase orders will be six (6) months from the date of this notice and twelve (12) months from the notice date for final shipments, and minimum order quantities may apply. The last purchase and shipment dates may be extended if inventory is available.

**\* All Plating types (PBFREE,TIN/LEAD) for each item listed are included in this notice.**

<u>Central Part Number</u>	<u>Suggested Replacement</u>
MJ6503	N/A

Central would be happy to assist you by providing additional information or technical data to help locate an alternate source if we have no replacement available. If you would like assistance, please visit <https://my.centrasemi.com/submit-inquiry?type=ER> to submit an online inquiry.

DISCLAIMER: This End of Life (EOL) notification is in accordance with JEDEC standard JESD48 - Product Discontinuance. Central Semiconductor Corp. will make every effort to offer life-time buy (LTB) opportunities and/or offer replacement devices to existing customers for discontinued devices, however, one or both may not be possible for all devices. Please contact your local Central Semiconductor sales representative for LTB opportunities/additional information.