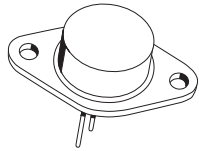


2N6383  
2N6384  
2N6385

**NPN SILICON POWER  
DARLINGTON TRANSISTOR**



**TO-3 CASE**

# Central<sup>TM</sup>

**Semiconductor Corp.**

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N3683 SERIES types are NPN Silicon Power Darlington Transistors designed for power amplifier applications.

**MARKING: FULL PART NUMBER**

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

Collector-Base Voltage
Collector-Emitter Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Collector Current
Peak Collector Current
Base Current
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance

SYMBOL	<u>2N6383</u>	<u>2N6384</u>	<u>2N6385</u>	UNITS
$V_{CBO}$	40	60	80	V
$V_{CEX}$	40	60	80	V
$V_{CEO}$	40	60	80	V
$V_{EBO}$		5.0		V
$I_C$		10		A
$I_{CM}$		15		A
$I_B$		250		mA
$P_D$		100		W
$T_J, T_{stg}$		-65 to +200		$^\circ\text{C}$
$\theta_{JC}$		1.75		$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CEV}$	$V_{CEV}=\text{Rated } V_{CEO}, V_{BE(\text{off})}=1.5\text{V}$		300	$\mu\text{A}$
$I_{CEV}$	$V_{CEV}=\text{Rated } V_{CEO}, V_{BE(\text{off})}=1.5\text{V}, T_C=150^\circ\text{C}$		3.0	mA
$I_{CEO}$	$V_{CE}=\text{Rated } V_{CEO}$		1.0	mA
$I_{EBO}$	$V_{EB}=5.0\text{V}$		10	mA
$BV_{CEO}$	$I_C=200\text{mA}$ (2N6383)	40		V
$BV_{CEO}$	$I_C=200\text{mA}$ (2N6384)	60		V
$BV_{CEO}$	$I_C=200\text{mA}$ (2N6385)	80		V
$BV_{CER}$	$I_C=200\text{mA}, R_{BE}=100\Omega$ (2N6383)	40		V
$BV_{CER}$	$I_C=200\text{mA}, R_{BE}=100\Omega$ (2N6384)	60		V
$BV_{CER}$	$I_C=200\text{mA}, R_{BE}=100\Omega$ (2N6385)	80		V
$BV_{CEV}$	$I_C=200\text{mA}, V_{BE(\text{off})}=1.5\text{V}$ (2N6383)	40		V
$BV_{CEV}$	$I_C=200\text{mA}, V_{BE(\text{off})}=1.5\text{V}$ (2N6384)	60		V
$BV_{CEV}$	$I_C=200\text{mA}, V_{BE(\text{off})}=1.5\text{V}$ (2N6385)	80		V

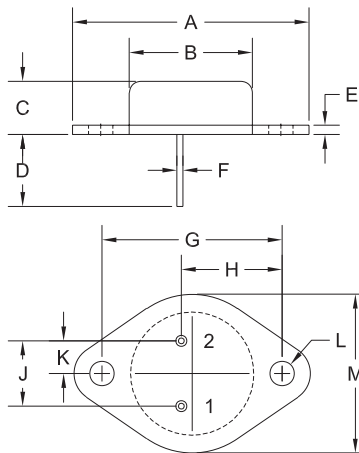
R1 (28-August 2008)

**NPN SILICON POWER  
DARLINGTON TRANSISTOR**

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$V_{CE(SAT)}$	$I_C=5.0\text{A}, I_B=10\text{mA}$		2.0	V
$V_{CE(SAT)}$	$I_C=10\text{A}, I_B=100\text{mA}$		3.0	V
$V_{BE(ON)}$	$V_{CE}=3.0\text{V}, I_C=5.0\text{A}$		2.8	V
$V_{BE(ON)}$	$V_{CE}=3.0\text{V}, I_C=10\text{A}$		4.5	V
$h_{FE}$	$V_{CE}=3.0\text{V}, I_C=5.0\text{A}$	1K	20K	
$h_{FE}$	$V_{CE}=3.0\text{V}, I_C=10\text{A}$	100		
$V_F$	$I_F=10\text{A}$		4.0	V
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		200	pF
$ h_{he} $	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}, f=1.0\text{MHz}$	20		
$h_{he}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}, f=1.0\text{kHz}$	1K		

**TO-3 CASE - MECHANICAL OUTLINE**



R2

SYMBOL	DIMENSIONS			
	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)

**LEAD CODE:**

- 1) Base
- 2) Emitter
- C) Collector

**MARKING: FULL PART NUMBER**

R1 (28-August 2008)

## 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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