

**CEN-U45**  
**NPN SILICON**  
**DARLINGTON TRANSISTOR**



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**TO-202 CASE**

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CEN-U45 is a NPN silicon Darlington transistor designed for general purpose amplifier and driver applications where high gain and high power dissipation is required.

**MARKING: FULL PART NUMBER**

**APPLICATIONS:**

- Designed for general purpose amplifiers and drivers

**FEATURES:**

- High Collector Current (2.0A)
- High DC Current Gain (25K MIN)

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

Collector-Base Voltage
Collector-Emitter Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Power Dissipation
Power Dissipation ( $T_C=25^\circ\text{C}$ )
Operating and Storage Junction Temperature
Thermal Resistance
Thermal Resistance

SYMBOL		UNITS
$V_{CB0}$	50	V
$V_{CEO}$	40	V
$V_{CES}$	40	V
$V_{EBO}$	12	V
$I_C$	2.0	A
$P_D$	2.0	W
$P_D$	10	W
$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$
$\theta_{JA}$	62.5	$^\circ\text{C/W}$
$\theta_{JC}$	12.5	$^\circ\text{C/W}$

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

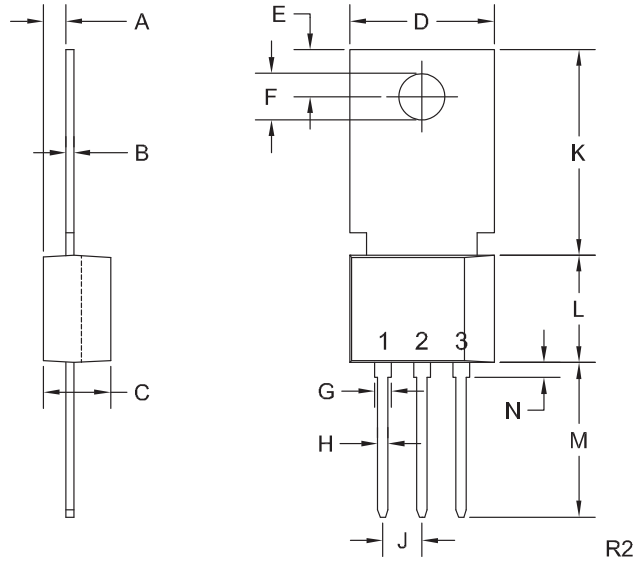
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CBO}$	$V_{CB}=30\text{V}$		100	nA
$I_{EBO}$	$V_{EB}=10\text{V}$		100	nA
$BV_{CBO}$	$I_C=100\mu\text{A}$	50		V
$BV_{CES}$	$I_C=100\mu\text{A}$	40		V
$BV_{EBO}$	$I_E=10\mu\text{A}$	12		V
$V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=2.0\text{mA}$		1.5	V
$V_{CE(SAT)}$	$I_C=200\text{mA}, I_B=2.0\text{mA}$		1.0	V
$V_{BE(SAT)}$	$I_C=1.0\text{A}, I_B=2.0\text{mA}$		2.0	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$		2.0	V
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=200\text{mA}$	25K	150K	
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=500\text{mA}$	15K		
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$	4.0K		
$f_T$	$V_{CE}=5.0\text{V}, I_C=200\text{mA}, f=100\text{MHz}$	100		MHz
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		8.0	pF

R2 (23-January 2012)

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**TO-202 CASE - MECHANICAL OUTLINE**



**LEAD CODE:**  
 1) Emitter  
 2) Base  
 3) Collector  
 Tab is common to pin 3

**MARKING:**  
**FULL PART NUMBER**

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.055	0.071	1.40	1.80
B	0.016	0.024	0.40	0.60
C	0.173	0.181	4.40	4.60
D	0.374	0.413	9.50	10.5
E	0.118	0.154	3.00	3.90
F (DIA)	0.124	0.150	3.15	3.80
G	0.035	0.055	0.90	1.40
H	0.023	0.031	0.59	0.80
J	0.094	0.106	2.39	2.69
K	0.459	0.559	11.66	14.21
L	0.280	0.346	7.12	8.80
M	0.406	0.531	10.3	13.5
N	0.024	0.059	0.60	1.50

TO-202 (REV: R2)

R2 (23-January 2012)

## 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

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