

CEN-U45N
SILICON
NPN DARLINGTON TRANSISTOR



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CEN-U45N is a silicon NPN 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	1.7	W
P_D	8.5	W
T_J, T_{stg}	-65 to +150	$^\circ\text{C}$
θ_{JA}	73.5	$^\circ\text{C/W}$
θ_{JC}	14.7	$^\circ\text{C/W}$

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

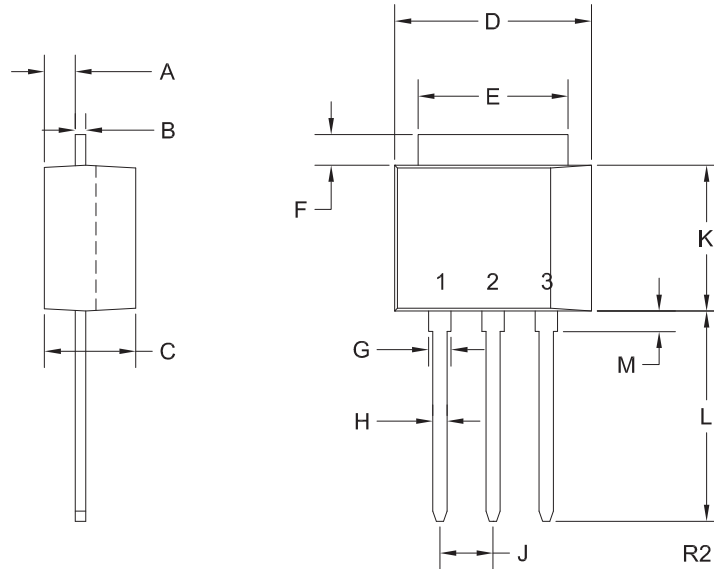
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=30\text{V}$		100	nA
I_{EBO}	$V_{EB}=10\text{V}$		100	nA
BV_{CB0}	$I_C=100\mu\text{A}$	50		V
BV_{CES}	$I_C=100\mu\text{A}$	40		V
BV_{EBO}	$I_E=10\mu\text{A}$	12		V
$V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=2.0\text{mA}$		1.5	V
$V_{CE(SAT)}$	$I_C=200\text{mA}, I_B=2.0\text{mA}$		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

R0 (6-January 2014)

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TO-202-2 CASE - MECHANICAL OUTLINE



LEAD CODE:

- 1) Emitter
 - 2) Base
 - 3) Collector
- Tab is common to pin 2

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	0.236	0.355	6.00	9.00
F	-	0.071	-	1.80
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	0.280	0.346	7.12	8.80
L	0.406	0.531	10.3	13.5
M	0.024	0.059	0.60	1.50

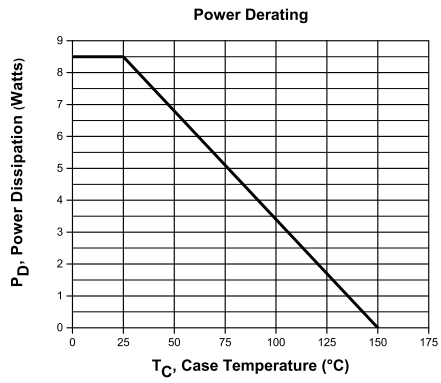
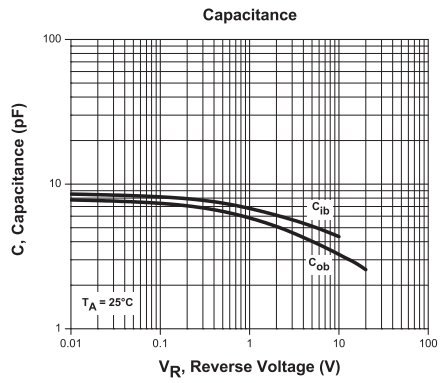
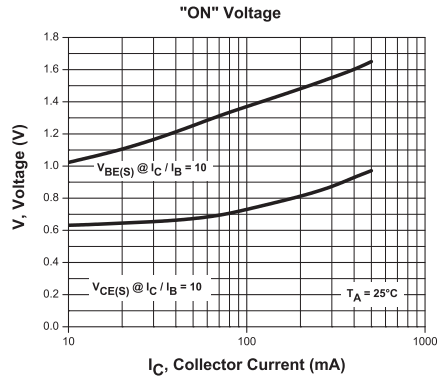
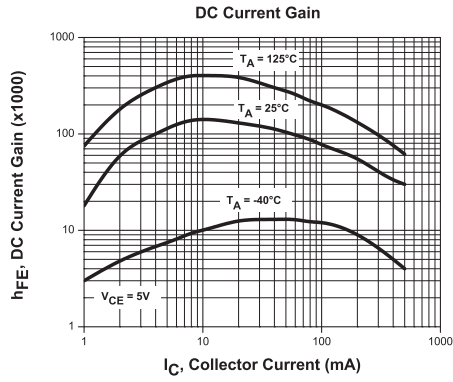
TO-202-2 (REV: R2)

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TYPICAL ELECTRICAL CHARACTERISTICS



R0 (6-January 2014)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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

DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2nd 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

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).

CONTACT US

Corporate Headquarters & Customer Support Team

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www.centrasemi.com

Worldwide Field Representatives:
www.centrasemi.com/wwreps

Worldwide Distributors:
www.centrasemi.com/wwdistributors

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



Product End of Life Notification

PDN ID:	PDN01270
Notification Date:	5/30/24
Last Buy Date:	Stock Only
Last Shipment Date:	Stock Only

<https://www.centrasemi.com>

Please be advised that Central Semiconductor must immediately discontinue the product(s) listed in the attached PDN notice. Orders can only be accepted for products with available inventory on hand.

You may have purchased one or more of the products listed. Please do not hesitate to contact your local Central Semiconductor sales representative with any questions or needs you may have. Central regrets any inconvenience this may cause.

Sincerely,

Central Semiconductor, LLC

DISCLAIMER: This End of Life (EOL) notification is in accordance with JEDEC standard JESD48 - Product Discontinuance. Central Semiconductor 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.



https://www.centrasemi.com

Product End of Life Notification

PDN ID:	PDN01270
Notification Date:	5/30/24
Last Buy Date:	Stock Only
Last Shipment Date	Stock Only

Summary: All devices manufactured in the TO-202 and TO-202-2 packages are discontinued and now classified as End of Life (EOL).

Although Central Semiconductor 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 Portfolio Management. 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.**

Central Part Number	Suggested Replacement
CEN-U01A	N/A
CEN-U02	N/A
CEN-U05	N/A
CEN-U05N	N/A
CEN-U06	N/A
CEN-U06N	N/A
CEN-U07	N/A
CEN-U07 MOD1	N/A
CEN-U07N	N/A
CEN-U10	N/A
CEN-U10N	N/A
CEN-U45	N/A
CEN-U45N	N/A
CEN-U51A	N/A
CEN-U52	N/A
CEN-U55	N/A
CEN-U55N	N/A
CEN-U56	N/A
CEN-U56N	N/A
CEN-U57	N/A
CEN-U57N	N/A
CEN-U60	N/A
CEN1314	N/A
CEN1319	N/A
CEN621	N/A
CEN928	N/A
CEN934	N/A
D40C1	N/A
D40C1N	N/A
D40C2	N/A
D40C4	N/A
D40C4N	N/A
D40C5	N/A
D40C7	N/A
D40C8	N/A

*** CONTINUED ***

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<https://www.centrasemi.com>

Product End of Life Notification

PDN ID:	PDN01270
Notification Date:	5/30/24
Last Buy Date:	Stock Only
Last Shipment Date	Stock Only

*** CONTINUED FROM PRIOR PAGE ***

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

Central Part Number	Suggested Replacement
D40D1	N/A
D40D10	N/A
D40D11	N/A
D40D13	N/A
D40D2	N/A
D40D4	N/A
D40D5	N/A
D40D7	N/A
D40D8	N/A
D40E1	N/A
D40E5	N/A
D40E7	N/A
D40K1	N/A
D40K2	N/A
D40K3	N/A
D40K4	N/A
D41D1	N/A
D41D10	N/A
D41D11	N/A
D41D2	N/A
D41D4	N/A
D41D5	N/A
D41D5 MOD	N/A
D41D7	N/A
D41D8	N/A
D41E1	N/A
D41E5	N/A
D41E7	N/A
D41E7N	N/A
2N6548	N/A
2N6549	N/A
2N6551	N/A
2N6552	N/A
2N6553	N/A
2N6554	N/A
2N6554-N	N/A
2N6555	N/A
2N6556	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.

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