

TIP140 TIP141 TIP142 NPN
TIP145 TIP146 TIP147 PNP

**COMPLEMENTARY
SILICON
POWER DARLINGTON TRANSISTORS**



TO-218 TRANSISTOR CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR TIP140 and TIP145 series devices are complementary silicon power Darlington transistors manufactured by the epitaxial base process, designed for general purpose amplifier and low speed switching applications where high gain is required.

MARKING: FULL PART NUMBER

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

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

SYMBOL	TIP140	TIP141	TIP142	UNITS
	TIP145	TIP146	TIP147	
V_{CBO}	60	80	100	V
V_{CEO}	60	80	100	V
V_{EBO}		5.0		V
I_C		10		A
I_{CM}		20		A
I_B		0.5		A
P_D		125		W
T_J, T_{stg}		-65 to +150		$^\circ\text{C}$
θ_{JC}		1.0		$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CBO}	$V_{CB}=\text{Rated } V_{CBO}$			1.0	mA
I_{CEO}	$V_{CE}=\frac{1}{2}\text{Rated } V_{CEO}$			2.0	mA
I_{EBO}	$V_{EB}=5.0\text{V}$			2.0	mA
BV_{CEO}	$I_C=30\text{mA}$ (TIP140, TIP145)	60			V
BV_{CEO}	$I_C=30\text{mA}$ (TIP141, TIP146)	80			V
BV_{CEO}	$I_C=30\text{mA}$ (TIP142, TIP147)	100			V
$V_{CE(SAT)}$	$I_C=5.0\text{A}, I_B=10\text{mA}$			2.0	V
$V_{CE(SAT)}$	$I_C=10\text{A}, I_B=40\text{mA}$			3.0	V
$V_{BE(ON)}$	$V_{CE}=4.0\text{V}, I_C=10\text{A}$			3.0	V
V_F	$I_F=10\text{A}$			2.8	V
h_{FE}	$V_{CE}=4.0\text{V}, I_C=5.0\text{A}$	1.0K			
h_{FE}	$V_{CE}=4.0\text{V}, I_C=10\text{A}$	500			
t_{on}	$I_C=10\text{A}, I_{B1}=I_{B2}=40\text{mA}, R_L=3.0\Omega$		0.9		μs
t_{off}	$I_C=10\text{A}, I_{B1}=I_{B2}=40\text{mA}, R_L=3.0\Omega$		4.0		μs

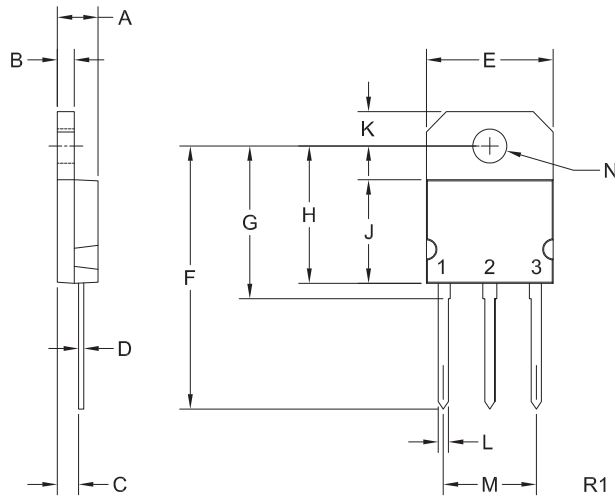
R3 (23-December 2015)

TIP140 TIP141 TIP142 NPN
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TO-218 TRANSISTOR CASE - MECHANICAL OUTLINE



LEAD CODE:
 1) Base
 2) Collector
 3) Emitter
 Tab) Collector

**MARKING:
 FULL PART NUMBER**

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.185	0.193	4.70	4.90
B	0.047	0.082	1.20	2.08
C	0.098		2.49	
D	0.019	0.030	0.48	0.76
E	0.578	0.598	14.68	15.19
F	1.220		30.99	
G	0.708		17.98	
H	-	0.637	-	16.18
J	-	0.480	-	12.19
K	0.155	0.163	3.94	4.14
L	0.043	0.051	1.09	1.30
M	0.425	0.437	10.80	11.10
N	0.157	0.161	3.99	4.09

TO-218 Transistor (REV: R1)

R3 (23-December 2015)

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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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:	PDN01022 Rev:001
Notification Date:	4/07/17
Last Buy Date:	10/04/16
Last Shipment Date	4/04/17

Summary: All devices manufactured in the TO-218 package are discontinued and now classified as End of Life (EOL). Central is in the process of qualifying replacements for certain TO-218 devices in the TO-247 package; items with planned replacements are shown below. Rev:001 of PDN#01022, April 7, 2017 issued to remove TIP36C and TIP36C SL from the PDN to address market demand. Part numbers TIP36C and TIP36C SL are once again active devices.

Although Central Semiconductor Corp. makes every effort to continue to produce devices that have been proclaimed EOL (End of Life) by various 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 Product Management Process. Any replacement product will be noted below. The effective date for placing the last purchase order will be six(6) months from the date of this notice and twelve(12) months from the notice date for final shipments; this may be extended if inventory is available.

<u>Central Part Number</u>	<u>Replacement</u>
BDV64	N/A
BDV64A	N/A
BDV64B	N/A
BDV65	N/A
BDV65A	N/A
BDV65B	N/A
BDW83A	N/A
BDW83B	N/A
BDW83C	N/A
BDW84A	N/A
BDW84B	N/A
BDW84C	N/A
BUV47A	N/A
BU426	N/A
CEN1356	N/A
CQ218-45B	N/A
CQ218-45D	N/A
CQ218-45M	N/A
CQ218-45N	N/A
CQ218I-25B	N/A
CQ218I-25D	N/A
CQ218I-25M	N/A
CQ218I-25N	N/A
CQ218I-40B	N/A
CQ218I-40D	N/A
CQ218I-40M	N/A
CQ218I-40N	N/A
CS218-35B	N/A
CS218-35D	N/A
CS218-35M	N/A
CS218-35N	N/A
CS218-35P	N/A
CS218-35PB	N/A
CS218-55B	N/A
CS218-55D	N/A

*** CONTINUED ***

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.

Product End of Life Notification

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Notification Date:	4/07/17
Last Buy Date:	10/04/16
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*** CONTINUED FROM PRIOR PAGE ***

<u>Central Part Number</u>	<u>Replacement</u>
CS218-55M	N/A
CS218-55N	N/A
CS218-55P	N/A
CS218-55PB	N/A
CS218I-30B	N/A
CS218I-30D	N/A
CS218I-30M	N/A
CS218I-30N	N/A
CS218I-30P	N/A
CS218I-30PB	N/A
CS218I-50B	N/A
CS218I-50D	N/A
CS218I-50M	N/A
CS218I-50N	N/A
CS218I-50P	N/A
CS218I-50PB	N/A
TIP140	TIP142 TO-247 H
TIP141	TIP142 TO-247 H
TIP142	TIP142 TO-247 H
TIP145	TIP147 TO-247 H
TIP146	TIP147 TO-247 H
TIP147	TIP147 TO-247 H
TIP2955	N/A
TIP3055	N/A
TIP33A	TIP35C TO-247 H
TIP33B	TIP35C TO-247 H
TIP33C	TIP35C TO-247 H
TIP34A	TIP36C TO-247 H
TIP34B	TIP36C TO-247 H
TIP34C	TIP36C TO-247 H
TIP35A	TIP35C TO-247 H
TIP35B	TIP35C TO-247 H
TIP35C	TIP35C TO-247 H
TIP35C SL	TIP35C TO-247 H
TIP36	TIP36C TO-247 H
TIP36A	TIP36C TO-247 H
TIP36B	TIP36C TO-247 H
TIP36B SL	TIP36C TO-247 H

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. Please email your requests to engineering@centrasemi.com.

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