

CentralTM Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA

Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

TIP110 TIP111 TIP112 NPN
TIP115 TIP116 TIP117 PNPSILICON POWER DARLINGTON
COMPLEMENTARY TRANSISTORS

JEDEC TO-220 AB CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR TIP110, TIP115 series types are Complementary Silicon Power Darlington Transistors designed low speed switching and amplifier applications.

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

	<u>SYMBOL</u>	<u>TIP110</u> <u>TIP115</u>	<u>TIP111</u> <u>TIP116</u>	<u>TIP112</u> <u>TIP117</u>	<u>UNITS</u>
Collector-Base Voltage	V_{CBO}	60	80	100	V
Collector-Emitter Voltage	V_{CEO}	80	80	100	V
Emitter-Base Voltage	V_{EBO}	5.0	5.0	5.0	V
Collector Current	I_C		2.0		A
Collector Current (Peak)	I_{CM}		4.0		A
Base Current	I_B		50		mA
Power Dissipation	P_D		50		W
Operating and Storage					
Junction Temperature	T_J, T_{stg}		-65 to +150		$^\circ\text{C}$
Thermal Resistance	θ_{JC}		2.5		$^\circ\text{C/W}$

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

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>TIP110</u> <u>TIP115</u>		<u>TIP111</u> <u>TIP116</u>		<u>TIP112</u> <u>TIP117</u>		<u>UNITS</u>
		<u>MIN</u>	<u>MAX</u>	<u>MIN</u>	<u>MAX</u>	<u>MIN</u>	<u>MAX</u>	
I_{CBO}	$V_{CB} = 60\text{V}$		1.0		-		-	mA
I_{CBO}	$V_{CB} = 80\text{V}$		-		1.0		-	mA
I_{CBO}	$V_{CB} = 100\text{V}$		-		-		1.0	mA
I_{CEO}	$V_{CE} = 30\text{V}$		2.0		-		-	mA
I_{CEO}	$V_{CE} = 40\text{V}$		-		2.0		-	mA
I_{CEO}	$V_{CE} = 50\text{V}$		-		-		2.0	mA
I_{EBO}	$V_{BE} = 5.0\text{V}$		2.0		2.0		2.0	mA
BV_{CEO}	$I_C = 30\text{mA}$	60		80		100		V
$V_{CE(SAT)}$	$I_C = 2.0\text{A}, I_B = 8.0\text{mA}$		2.5		2.5		2.5	V
$V_{BE(ON)}$	$V_{CE} = 4.0\text{V}, I_C = 2.0\text{A}$		2.8		2.8		2.8	V
h_{FE}	$V_{CE} = 4.0\text{V}, I_C = 1.0\text{A}$	1000		1000		1000		
h_{FE}	$V_{CE} = 4.0\text{V}, I_C = 2.0\text{A}$	500		500		500		
f_T	$V_{CE} = 10\text{V}, I_C = 750\text{mA}, f = 1.0\text{MHz}$	25		25		25		MHz

(Continued on reverse side)

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

		<u>MIN</u>	<u>MAX</u>	<u>UNITS</u>
C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 0.1\text{MHz}$ TIP110, TIP111, TIP112		100	pF
C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 0.1\text{MHz}$ TIP115, TIP116, TIP117		200	pF

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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

Central Semiconductor Corp.
145 Adams Avenue
Hauppauge, NY 11788 USA
Main Tel: (631) 435-1110
Main Fax: (631) 435-1824
Support Team Fax: (631) 435-3388
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



<http://www.centrasemi.com>

Product End of Life Notification

PDN ID:	PDN01250
Notification Date:	2/10/23
Last Buy Date:	Stock Only
Last Shipment Date	Stock Only

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 Corp.

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

PDN ID:	PDN01250
Notification Date:	2/10/23
Last Buy Date:	Stock Only
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Summary: The following power transistors are discontinued and now classified as of End of Life (EOL). NOTE: If inventory has been depleted, some devices may be available on special order; please contact your Central salesperson, manufacturer's rep, franchised distributor, or inquiry@centrasemi.com.

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 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
BDW51	N/A
BDW51A	N/A
BDW51B	N/A
BDW51C	N/A
BDW52	N/A
BDW52A	N/A
BDW52B	N/A
BDW52C	N/A
BDW94B	N/A
BDX20	N/A
BDX54	N/A
BDX54B	N/A
BDX54C	N/A
BDX54E	N/A
BDX85	N/A
BDX85A	N/A
BDX85B	N/A
BDX85C	N/A
BDX87	N/A
BDX87A	N/A
BDX87B	N/A
BDX87C	N/A
BDY90	N/A
BD135	N/A
BD135 SL	N/A
BD135-10 SL	N/A
BD135-16	N/A
BD135-16 SL	N/A
BD136	N/A
BD136-10	N/A
BD136-10 SL	N/A
BD136-16	N/A
BD136-16 SL	N/A
BD137	N/A

*** CONTINUED ***

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*** CONTINUED FROM PRIOR PAGE ***

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Central Part Number	Suggested Replacement
BD137-10	N/A
BD137-10 SL	N/A
BD137-16	N/A
BD138	N/A
BD138-10	N/A
BD138-10 SL	N/A
BD138-16	N/A
BD138-16 SL	N/A
BD139	N/A
BD139-10	N/A
BD139-10 SL	N/A
BD139-16	N/A
BD139-16 SL	N/A
BD140	N/A
BD140-10	N/A
BD140-10 SL	N/A
BD140-16	N/A
BD140-16 SL	N/A
BD157	N/A
BD158	N/A
BD159	N/A
BD175	N/A
BD176	N/A
BD177	N/A
BD178	N/A
BD179	N/A
BD180	N/A
BD201	N/A
BD204	N/A
BD233	N/A
BD234	N/A
BD235	N/A
BD236	N/A
BD237	N/A
BD238	N/A
BD238 SL	N/A
BD433	N/A
BD434	N/A
BD437	N/A
BD438	N/A
BD439	N/A
BD440	N/A
BD441	N/A

*** CONTINUED ***

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Central Part Number	Suggested Replacement
BD442	N/A
BD537	N/A
BD538	N/A
BD675	N/A
BD675A	N/A
BD676	N/A
BD676A	N/A
BD676A SL	N/A
BD677	N/A
BD677A	N/A
BD678	N/A
BD678A	N/A
BD679	N/A
BD679A	N/A
BD679A SL	N/A
BD680	N/A
BD680A	N/A
BD680A SL	N/A
BD681	N/A
BD681 SL	N/A
BD682	N/A
BD682 SL	N/A
BD683	N/A
BD683 SL	N/A
BD908	N/A
BF457	N/A
BF458	N/A
BF459	N/A
BF459 SL	N/A
BF469	N/A
BF471	N/A
BF472	N/A
BUW34	N/A
BUW35	N/A
BUW36	N/A
BUW44	N/A
BUW45	N/A
BUW46	N/A
BUX43	N/A
BUX44	N/A
BUX47	N/A
BUX48	N/A
BUX80	N/A

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Central Part Number	Suggested Replacement
BUY69A	N/A
BUY69B	N/A
BUY69C	N/A
BU408	N/A
BU409	N/A
CEN1025	N/A
CEN1037	N/A
CEN1063	N/A
CEN1092	N/A
CEN1102	N/A
CEN1111	N/A
CEN1177	N/A
CEN1247	N/A
CEN1306	N/A
CEN1323	N/A
CEN1328	N/A
CEN1364 SL	N/A
CEN1378 SL	N/A
CEN1391	N/A
CEN1396	N/A
CEN1406	N/A
CEN1416	N/A
CEN1439	N/A
CEN1450	N/A
CEN496	N/A
CEN537	N/A
CEN591	N/A
CEN596	N/A
CEN644	N/A
CEN671	N/A
CEN698-1	N/A
CEN698-2	N/A
CEN774	N/A
CEN821	N/A
CEN844	N/A
CEN925	N/A
CEN951	N/A
CEN961	N/A
CEN972	N/A
CEN992	N/A
CM3441	N/A
CP166-BUP54-WN	N/A
CP230-CZT122-CT	CP260-TIP122-CT

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Central Part Number	Suggested Replacement
CP230-HTIP122-CM	N/A
CP230-H2N6039-CM	N/A
CP230-TIP122-CM	CP260-TIP122-CM
CP230-TIP122-CT	CP260-TIP122-CT
CP230-TIP122-CT20	N/A
CP230-2N6039-CM	N/A
CP230-2N6039-CT	N/A
CP230-2N6039-WN	N/A
CP630-CEN1263-WN	CP660-TIP127-WN
CP630-CZT127-CT	CP660-TIP127-CT
CP630-HTIP127-CM	N/A
CP630-TIP127-CT	CP660-TIP127-CT
CP630-TIP127-WN	CP660-TIP127-WN
CP630-2N6036-CT	N/A
CZT122 BK	N/A
CZT122 TR	N/A
CZT127 BK	N/A
CZT127 TR	N/A
CZT31C BK	N/A
CZT31C TR	N/A
D44C12	N/A
D44E1	N/A
D44E3	N/A
D45E3	N/A
D45H8	N/A
MJE13003	N/A
MJE13003 SL	N/A
MJE13005	N/A
MJE13005 SL	N/A
MJE13006	N/A
MJE13008	N/A
MJE13009	N/A
MJE15030	N/A
MJE15031	N/A
MJE170	N/A
MJE171	N/A
MJE172	N/A
MJE180	N/A
MJE181	N/A
MJE182	N/A
MJE200	N/A
MJE210	N/A
MJE220	N/A

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Central Part Number	Suggested Replacement
MJE221	N/A
MJE222	N/A
MJE223	N/A
MJE224	N/A
MJE225	N/A
MJE230	N/A
MJE231	N/A
MJE232	N/A
MJE233	N/A
MJE234	N/A
MJE235	N/A
MJE2360T	N/A
MJE240	N/A
MJE241	N/A
MJE242	N/A
MJE243	N/A
MJE244	N/A
MJE250	N/A
MJE251	N/A
MJE252	N/A
MJE253	N/A
MJE254	N/A
MJE2801T	N/A
MJE2901T	N/A
MJE2955T	N/A
MJE340	N/A
MJE341	N/A
MJE344	N/A
MJE344 SL	N/A
MJE3440	N/A
MJE350	N/A
MJE370	N/A
MJE371	N/A
MJE520	N/A
MJE521	N/A
MJE700	N/A
MJE701	N/A
MJE702	N/A
MJE703	N/A
MJE710	N/A
MJE711	N/A
MJE712	N/A
MJE720	N/A

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Central Part Number	Suggested Replacement
MJE721	N/A
MJE722	N/A
MJE800	N/A
MJE800T	N/A
MJE801	N/A
MJE801T	N/A
MJE802	N/A
MJE802T	N/A
MJE803	N/A
MJE803T	N/A
MJ1000	N/A
MJ1001	N/A
MJ10012	N/A
MJ11011	N/A
MJ11012	N/A
MJ11013	N/A
MJ11014	N/A
MJ11015	N/A
MJ11016	N/A
MJ2501	N/A
MJ2955	N/A
MJ3000	N/A
MJ3001	N/A
MJ4033	N/A
MJ4035	N/A
MJ410	N/A
MJ802	N/A
MJ901	N/A
PMD10K100	N/A
PMD10K40	N/A
PMD10K60	N/A
PMD10K80	N/A
PMD12K100	N/A
PMD12K40	N/A
PMD12K60	N/A
PMD12K80	N/A
PMD13K100	N/A
PMD16K100	N/A
PMD16K60	N/A
PMD16K80	N/A
PMD1601K	N/A
PMD1602K	N/A
PMD1603K	N/A

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Central Part Number	Suggested Replacement
PMD17K100	N/A
PMD17K60	N/A
PMD17K80	N/A
PMD1701K	N/A
PMD1702K	N/A
PMD1703K	N/A
PMD18K100	N/A
PMD18K60	N/A
PMD18K80	N/A
PMD19K100	N/A
PMD19K60	N/A
PMD19K80	N/A
SE9303	N/A
SE9304	N/A
SE9305	N/A
TIP102	N/A
TIP107	N/A
TIP107 SL	N/A
TIP117	N/A
TIP117 SL	N/A
TIP122	N/A
TIP122 SL	N/A
TIP127	N/A
TIP127 SL	N/A
TIP132	N/A
TIP137	N/A
TIP140T	N/A
TIP141T	N/A
TIP142T	N/A
TIP145T	N/A
TIP146T	N/A
TIP147T	N/A
TIP29	N/A
TIP29A	N/A
TIP29A SL	N/A
TIP29B	N/A
TIP29C	N/A
TIP31	N/A
TIP31 SL	N/A
TIP31A	N/A
TIP31B	N/A
TIP31C SL	N/A
TIP32	N/A

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Central Part Number	Suggested Replacement
TIP32A	N/A
TIP32A SL	N/A
TIP32B	N/A
TIP32C	N/A
TIP41	N/A
TIP41A	N/A
TIP41B	N/A
TIP41C	N/A
TIP41C SL	N/A
TIP42	N/A
TIP42A	N/A
TIP42B	N/A
TIP42C	N/A
TIP42C SL	N/A
TIP42D	N/A
2N3054	N/A
2N3055	N/A
2N3442	N/A
2N3448	N/A
2N3713	N/A
2N3714	N/A
2N3715	N/A
2N3716	N/A
2N3766	N/A
2N3767	N/A
2N3771	N/A
2N3772	N/A
2N3773	N/A
2N3789	N/A
2N3790	N/A
2N3791	N/A
2N3792	N/A
2N3902	N/A
2N4231	N/A
2N4232	N/A
2N4233	N/A
2N4347	N/A
2N4348	N/A
2N4398	N/A
2N4399	N/A
2N4901	N/A
2N4902	N/A
2N4903	N/A

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Central Part Number	Suggested Replacement
2N4904	N/A
2N4905	N/A
2N4906	N/A
2N4910	N/A
2N4911	N/A
2N4912	N/A
2N4913	N/A
2N4914	N/A
2N4915	N/A
2N4918	N/A
2N4919	N/A
2N4920	N/A
2N4921	N/A
2N4922	N/A
2N4923	N/A
2N4923 SL	N/A
2N5067	N/A
2N5068	N/A
2N5069	N/A
2N5192	N/A
2N5192 SL	N/A
2N5195	N/A
2N5195 SL	N/A
2N5240	N/A
2N5294	N/A
2N5296	N/A
2N5297	N/A
2N5297 SL	N/A
2N5298	N/A
2N5301	N/A
2N5302	N/A
2N5303	N/A
2N5490	N/A
2N5492	N/A
2N5494	N/A
2N5496	N/A
2N5629	N/A
2N5632	N/A
2N5655	N/A
2N5656	N/A
2N5657	N/A
2N5745	N/A
2N5760	N/A

*** CONTINUED ***

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Product End of Life Notification

PDN ID:	PDN01250
Notification Date:	2/10/23
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
2N5838	N/A
2N5873	N/A
2N5875	N/A
2N5876	N/A
2N5877	N/A
2N5878	N/A
2N5879	N/A
2N5880	N/A
2N5881	N/A
2N5882	N/A
2N5883	N/A
2N5884	N/A
2N5885	N/A
2N5886	N/A
2N6029	N/A
2N6031	N/A
2N6034	N/A
2N6035	N/A
2N6036	N/A
2N6037	N/A
2N6038	N/A
2N6039 SL	N/A
2N6040	N/A
2N6042	N/A
2N6043	N/A
2N6044	N/A
2N6045	N/A
2N6050	N/A
2N6051	N/A
2N6052	N/A
2N6055	N/A
2N6056	N/A
2N6057	N/A
2N6058	N/A
2N6059	N/A
2N6099	N/A
2N6107	N/A
2N6109	N/A
2N6111	N/A
2N6121	N/A
2N6122	N/A
2N6123	N/A
2N6124	N/A

*** CONTINUED ***

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<http://www.centrasemi.com>

Product End of Life Notification

PDN ID:	PDN01250
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*** CONTINUED FROM PRIOR PAGE ***

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

Central Part Number	Suggested Replacement
2N6125	N/A
2N6126	N/A
2N6129	N/A
2N6130	N/A
2N6131	N/A
2N6132	N/A
2N6133	N/A
2N6134	N/A
2N6226	N/A
2N6229	N/A
2N6230	N/A
2N6246	N/A
2N6247	N/A
2N6248	N/A
2N6249	N/A
2N6250	N/A
2N6251	N/A
2N6253	N/A
2N6254	N/A
2N6259	N/A
2N6260	N/A
2N6263	N/A
2N6282	N/A
2N6283	N/A
2N6284	N/A
2N6285	N/A
2N6286	N/A
2N6287	N/A
2N6288	N/A
2N6290	N/A
2N6292	N/A
2N6306	N/A
2N6307	N/A
2N6308	N/A
2N6312	N/A
2N6371	N/A
2N6383	N/A
2N6384	N/A
2N6385	N/A
2N6386	N/A
2N6387	N/A
2N6388	N/A
2N6465	N/A

*** CONTINUED ***

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Product End of Life Notification

PDN ID:	PDN01250
Notification Date:	2/10/23
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
2N6466	N/A
2N6469	N/A
2N6470	N/A
2N6471	N/A
2N6472	N/A
2N6475	N/A
2N6476	N/A
2N6489	N/A
2N6489 SL	N/A
2N6490	N/A
2N6491	N/A
2N6497	N/A
2N6498	N/A
2N6498 SL	N/A
2N6499	N/A
2N6499 SL	N/A
2N6530	N/A
2N6531	N/A
2N6532	N/A
2N6543	N/A
2N6544	N/A
2N6545	N/A
2N6546	N/A
2N6547	N/A
2N6569	N/A
2N6576	N/A
2N6577	N/A
2N6578	N/A
2N6594	N/A
2N6609	N/A
2N6666	N/A
2N6667	N/A
2N6668	N/A
2N6671	N/A
2N6672	N/A
2N6673	N/A
2N6674	N/A
2N6675	N/A
2N6677	N/A
2N6678	N/A
40250	N/A
40312	N/A

*** CONTINUED ***

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Product End of Life Notification

PDN ID:	PDN01250
Notification Date:	2/10/23
Last Buy Date:	Stock Only
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*** CONTINUED FROM PRIOR PAGE ***

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

<u>Central Part Number</u>	<u>Suggested Replacement</u>
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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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<http://www.centrasemi.com>

Product End of Life Notification

PDN ID:	PDN01042
Notification Date:	8/15/16
Last Buy Date:	2/15/17
Last Shipment Date	8/15/17

Summary: The TIP110 series of NPN and PNP Darlington power transistors, with the exception of TIP112 and TIP117, 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 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.

Central Part Number	Replacement
TIP110	TIP112
TIP111	TIP112
TIP115	TIP117
TIP116	TIP117

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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