

# Small Signal Transistors

## TO-39 Case (Continued)



TYPE NO.	DESCRIPTION	V <sub>CBO</sub>	V <sub>CEO</sub>	V <sub>EBO</sub>	I <sub>CBO</sub>	@ V <sub>CB</sub>	h <sub>FE</sub>		@ I <sub>C</sub>	@ V <sub>CE</sub>	V <sub>CE(SAT)</sub>	@ I <sub>C</sub>	f <sub>T</sub>	C <sub>ob</sub>	t <sub>on</sub>	t <sub>off</sub>	NF
		(V)	(V) *V <sub>CER</sub>	(V)	(μA) *I <sub>CEO</sub> **I <sub>CES</sub> ***I <sub>CEV</sub> ****I <sub>CER</sub>	(V)	MIN	MAX	(mA)	(V)	(V)	(mA)	(MHz) *TYP †TYP ‡TYP in GHz	(pF) *TYP	(ns) *TYP	(ns) *TYP	(dB) *TYP
		MIN	MIN	MIN							MAX		MIN	MAX	MAX	MAX	MAX
2N5784	NPN AMPL/SWITCH	80	65	5.0	10***	75	20	150	1,000	2.0	0.50	1,000	1.0	--	--	--	--
2N5785	NPN AMPL/SWITCH	65	50	5.0	10***	60	20	100	1,200	2.0	0.75	1,200	1.0	--	--	--	--
2N5786	NPN AMPL/SWITCH	45	40	3.5	10***	45	20	150	1,600	2.0	1.00	1,600	1.0		5.0	15	--
2N5859	NPN CORE DRIVER	80	40	6.0	0.25	50	30	120	500	1.0	0.70	1,000	250	7.0	35	60	--
2N5861	NPN CORE DRIVER	100	50	6.0	0.30	50	25	100	500	1.0	0.50	500	200	7.0	25	60	--
2N6190	NPN HIGH CURRENT	80	80	6.0	10	80	30	120	2,000	2.0	0.70	2,000	30	300	--	--	--
2N6191	PNP HIGH CURRENT	80	80	6.0	10	80	60	240	2,000	2.0	0.70	2,000	30	300	--	--	--
2N6192	PNP HIGH CURRENT	100	100	6.0	10	100	30	120	2,000	2.0	0.70	2,000	30	300	--	--	--
2N6193	PNP HIGH CURRENT	100	100	6.0	10	100	60	240	2,000	2.0	0.70	2,000	30	300	--	--	--
BC140	NPN AMPL/SWITCH	80	40	7.0	0.10**	60	40	250	100	1.0	1.00	1,000	50	25	250	850	--
BC141	NPN AMPL/SWITCH	100	60	7.0	0.10**	60	40	250	100	1.0	1.00	1,000	50	25	250	850	--
BC160	PNP AMPL/SWITCH	40	40	5.0	0.10**	40	40	250	100	1.0	1.00	1,000	50	30	500	650	--
BC161	PNP AMPL/SWITCH	60	60	5.0	0.10**	60	40	250	100	1.0	1.00	1,000	50	30	500	650	--
BC300	NPN AMPL/SWITCH	120	80	7.0	0.02	60	40	240	150	10	0.50	150	100*	12*	--	--	--
BC301	NPN AMPL/SWITCH	90	60	7.0	0.02	60	40	240	150	10	0.50	150	100*	12*	--	--	--
BC302	NPN AMPL/SWITCH	60	45	7.0	0.02	60	40	240	150	10	0.50	150	100*	12*	--	--	--
BC303	PNP AMPL/SWITCH	85	60	6.0	0.02	60	40	240	150	10	0.65	150	100*	15*	--	--	--
BC304	PNP AMPL/SWITCH	60	45	6.0	0.02	60	40	240	150	10	0.65	150	100*	15*	--	--	--
BC440	NPN AMPL/SWITCH	50	40	5.0	0.10	40	40	250	500	4.0	1.00	1,000	50	--	--	--	--
BC441	NPN AMPL/SWITCH	70	60	5.0	0.10	40	40	250	500	4.0	1.00	1,000	50	--	--	--	--
BC460	PNP AMPL/SWITCH	50	40	5.0	0.10	40	40	250	500	4.0	1.00	1,000	50	--	--	--	--
BC461	PNP AMPL/SWITCH	70	60	5.0	0.10	40	40	250	500	4.0	1.00	1,000	50	--	--	--	--
BCW78	NPN AMPL/SWITCH	45	45	5.0	0.02**	45	100	630	100	1.0	0.70	500	--	--	--	--	--
BCW80	PNP AMPL/SWITCH	45	45	5.0	0.02**	45	63	400	100	1.0	0.70	500	--	--	--	--	--
BD115	NPN HIGH VOLTAGE	250	180	5.0	550*	200	22	--	50	100	9.00	100	150*	--	--	--	--
BF178	NPN AMPL/SWITCH	185	115	5.0	0.01	185	20	--	30	20	--	--	120*	--	--	--	--
BF257	NPN HIGH VOLTAGE	160	160	5.0	50	100	25	--	30	10	1.00	30	90*	--	--	--	--
BF258	NPN HIGH VOLTAGE	250	250	5.0	50	200	25	--	30	10	1.00	30	90*	--	--	--	--
BF259	NPN HIGH VOLTAGE	300	300	5.0	50	250	25	--	30	10	1.00	30	90*	--	--	--	--
BF337	NPN HIGH VOLTAGE	250	200	5.0	100****	200	20	--	30	10	--	--	--	--	--	--	--
BFR36	NPN AMPL/SWITCH	40	30	3.0	0.15	20	60	--	70	5.0	--	--	1.0	--	--	--	4.0*
BFS89	NPN HIGH VOLTAGE	300	300	5.0	0.05	250	25	--	50	10	--	--	--	--	--	--	--
BFS95	PNP AMPL/SWITCH	40	35	6.0	0.05	30	15	--	1,000	10	0.20	150	--	--	--	--	--
BFT28C	PNP HIGH VOLTAGE	300	250	--	5.00	150	20	--	10	10	5.00	30	25	--	--	--	--
BFW16A	NPN AMPL/SWITCH	40	25	3.0	20	20	25	--	50	5.0	--	--	1.2†	--	--	--	6.0
BFW44	PNP AMPL/SWITCH	150	150	6.0	0.01	100	40	--	10	10	0.50	10	60	7.0	--	--	--
BFX34	NPN AMPL/SWITCH	120	60	6.0	10**	60	40	150	2,000	2.0	1.00	5,000	70	100	600	1,200	--
BFX84	NPN AMPL/SWITCH	100	60	6.0	0.50	100	30	--	150	10	1.00	500	50	12	--	--	--
BFX85	NPN AMPL/SWITCH	100	60	6.0	0.50	100	70	--	150	10	1.00	500	50	12	--	--	--

(26-September 2011)



## 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

#### 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](http://www.centrasemi.com)

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<http://www.centrasemi.com>

# Product End of Life Notification

<b>PDN ID:</b>	PDN01114
<b>Notification Date:</b>	9/06/19
<b>Last Buy Date:</b>	Stock Only
<b>Last Shipment Date</b>	Stock Only

Please be advised that Central Semiconductor must immediately discontinue the product(s) listed in the attached PDN notice. We are unable to accept any further orders for these products **unless** we have 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.

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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.

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Summary: The CP616, CP617, CP618, CP223, CP229 and CP243 RF transistor die processes are discontinued and now classified and 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 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 Management Process. 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.

<u>Central Part Number</u>	<u>Replacement</u>
BFW16A	N/A, Stock Only
CEN1179	N/A, Stock Only
CEN5503	N/A, Stock Only
CM4957	N/A, Stock Only
CM5160	N/A, Stock Only
CM5583	N/A, Stock Only
CM5943	N/A, Stock Only
CP223-2N3866-CT	N/A, Stock Only
CP223-2N3866-WN	N/A, Stock Only
CP229-2N5109-CM	N/A, Stock Only
CP229-2N5109-CT	N/A, Stock Only
CP229-2N5109-CT20	N/A, Stock Only
CP229-2N5109-WN	N/A, Stock Only
CP243-CM5943-WN	N/A, Stock Only
CP616-CM5160-CT	N/A, Stock Only
CP616-CM5160-CT20	N/A, Stock Only
CP616-CM5160-WN	N/A, Stock Only
CP616-2N5160-CM	N/A, Stock Only
CP616-2N5160-CT	N/A, Stock Only
CP616-2N5160-WN	N/A, Stock Only
CP617-CEN1271-CM	N/A, Stock Only
CP617-CEN1271-CT	N/A, Stock Only
CP617-CEN1271-WN	N/A, Stock Only
CP617-CM4957-CM	N/A, Stock Only
CP617-CM4957-CT	N/A, Stock Only
CP617-CM4957-CT20	N/A, Stock Only
CP617-CM4957-WN	N/A, Stock Only
CP618-CM5583-CT	N/A, Stock Only
CP618-CM5583-WN	N/A, Stock Only
CP618-2N5583-WN	N/A, Stock Only
2N3866	N/A, Stock Only
2N3866 TRAY	N/A, Stock Only
2N3866A	N/A, Stock Only
2N4427	N/A, Stock Only
2N5109	N/A, Stock Only
2N5109UB BK	N/A, Stock Only

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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.



<http://www.centrasemi.com>

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<b>Central Part Number</b>	<b>Replacement</b>
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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. Please email your requests to [engineering@centrasemi.com](mailto:engineering@centrasemi.com).

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