

# Small Signal Transistors

## TO-18 Case



TYPE NO.	DESCRIPTION	BV <sub>CBO</sub>	BV <sub>CEO</sub>	BV <sub>EBO</sub>	I <sub>CBO</sub> @ (mA) MAX *ICES **ICEV	V <sub>CB</sub> (V)	h <sub>FE</sub>		@ I <sub>C</sub> (mA)	@ V <sub>CE</sub> (V)	V <sub>CE</sub> (SAT) @ I <sub>C</sub>		C <sub>ob</sub> (pF) MAX	f <sub>T</sub> (MHz) MIN	NF (dB) MAX	t <sub>on</sub> (ns) MAX	t <sub>off</sub> (ns) MAX
		(V) MIN	(V) MIN	(V) MIN			MIN	MAX			(V) MAX	(mA) MAX					
2N703	NPN AMPL/SWITCH	25	25	5.0	--	--	40	100	10	10	0.5	10	5.0	70	--	--	--
2N706C	NPN SAT SWITCH	40	15	5.0	0.5	15	20	60	10	5.0	0.3	30	5.0	200	--	40	75
2N708	NPN SAT SWITCH	40	15	5.0	0.025	20	30	120	10	1.0	0.4	10	6.0	400	--	40	70
2N709A	NPN SAT SWITCH	15	6.0	4.0	0.005	5.0	30	90	10	0.5	0.3	3.0	3.0	900	--	15	15
2N717	NPN AMPL/SWITCH	60	40	5.0	--	--	20	60	150	10	1.5	150	35	40	--	--	--
2N718A	NPN AMPL/SWITCH	75	32	7.0	0.01	60	40	120	150	10	1.5	150	25	60	--	--	--
2N719A	NPN AMPL/SWITCH	120	60	7.0	0.01	75	20	60	150	10	5.0	150	15	40	--	--	--
2N720A	NPN AMPL/SWITCH	120	80	7.0	0.01	90	40	120	150	10	5.0	150	15	50	--	--	--
2N721	PNP AMPL/SWITCH	50	35	5.0	1.0	30	20	45	150	10	1.5	150	45	50	--	--	--
2N722A	PNP AMPL/SWITCH	50	35	5.0	0.10	30	30	90	150	10	1.5	150	45	60	--	--	--
2N726	PNP AMPL/SWITCH	25	20	5.0	1.0	25	15	45	10	1.0	0.6	10	5.0	140	--	--	--
2N727	PNP AMPL/SWITCH	25	20	5.0	1.0	25	30	120	10	1.0	0.6	10	5.0	140	--	--	--
2N730	NPN AMPL/SWITCH	60	35	5.0	--	--	20	60	150	10	1.5	150	35	40	--	--	--
2N731	NPN AMPL/SWITCH	60	35	5.0	--	--	40	120	150	10	1.5	150	35	50	--	--	--
2N743A	NPN SAT SWITCH	40	15	5.0	--	--	20	60	10	5.0	0.6	100	4.0	500	--	12	15
2N744A	NPN SAT SWITCH	40	15	5.0	--	--	40	120	10	5.0	0.6	100	4.0	500	--	12	15
2N753	NPN SAT SWITCH	25	20	5.0	0.05	15	40	120	10	1.0	0.6	10	5.0	200	--	40	75
2N760A	NPN LOW NOISE	60	60	8.0	0.10	30	76	333	1.0	5.0	1.0	10	8.0	50	--	--	--
2N783	NPN SAT SWITCH	40	15	5.0	0.25	25	20	60	10	1.0	0.25	10	3.5	200	--	16	30
2N784A	NPN SAT SWITCH	40	15	5.0	--	--	25	150	10	5.0	0.19	10	3.5	300	--	20	40
2N834A	NPN SAT SWITCH	40	--	5.0	0.50	20	25	--	10	1.0	0.25	10	4.0	500	--	33	75
2N835	NPN SAT SWITCH	25	20	5.0	0.50	20	20	--	10	1.0	0.3	10	4.0	300	--	20	35
2N864	PNP AMPL/SWITCH	6.0	6.0	6.0	0.10	10	25	125	1.0	6.0	0.1	5.0	9.0	--	--	--	--
2N865	PNP AMPL/SWITCH	10	6.0	6.0	0.10	10	100	350	1.0	6.0	0.1	5.0	9.0	--	--	--	--
2N869A	PNP AMPL/SWITCH	25	18	5.0	0.01	15	40	120	10	5.0	0.15	10	6.0	400	--	--	--
2N870	NPN AMPL/SWITCH	100	60	7.0	0.01	75	20	120	150	10	5.0	150	15	50	--	--	--
2N871	NPN AMPL/SWITCH	100	60	7.0	0.01	75	100	300	150	10	5.0	150	15	60	--	--	--
2N909	NPN AMPL SWITCH	30	25	5.0	--	--	110	350	50	10	2.0	50	25	50	--	--	--
2N910	NPN AMPL/SWITCH	100	60	7.0	0.025	75	75	--	10	10	1.2	50	15	60	--	--	--
2N911	NPN AMPL/SWITCH	100	60	7.0	0.025	75	35	--	10	10	1.2	50	15	50	--	--	--
2N912	NPN AMPL/SWITCH	100	60	7.0	0.025	75	15	--	10	10	1.2	50	15	40	--	--	--
2N914	NPN SAT SWITCH	40	15	5.0	0.025	20	30	120	10	1.0	0.7	200	6.0	60	--	40	40
2N915	NPN RF/IF OSC	70	50	5.0	--	--	50	200	10	10	--	--	3.5	250	--	--	--
2N916	NPN RF/IF OSC	45	45	5.0	--	--	50	200	10	10	--	--	6.0	300	--	--	--
2N929A	NPN LOW NOISE	60	45	6.0	0.02	45	40	120	0.01	5.0	0.5	10	6.0	45	4.0	--	--
2N930B	NPN LOW NOISE	60	45	6.0	0.20	45	100	300	0.01	5.0	0.5	10	6.0	45	3.0	--	--
2N947	NPN SAT SWITCH	15	12	3.0	--	--	30	--	10	1.0	0.4	5.0	8.0	200	--	--	50
2N956	NPN AMPL/SWITCH	75	50	7.0	0.01	60	100	300	150	10	1.5	150	25	70	--	--	--

## 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 (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

---

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

**Worldwide Field Representatives:**  
[www.centrasemi.com/wwreps](http://www.centrasemi.com/wwreps)

**Worldwide Distributors:**  
[www.centrasemi.com/wwdistributors](http://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/terms)

# Product End of Life Notification

<b>PDN ID:</b>	PDN01000
<b>Notification Date:</b>	8/03/15
<b>Last Buy Date:</b>	Varies
<b>Last Shipment Date</b>	Varies

Summary: The purpose of this End of Life Notification is to identify the standard packaged devices that Central previously discontinued without notification. This list excludes custom and bare die devices. The discontinuance of these devices predates Central's current EOL notification process. The notification process now utilized by Central is industry standard and future product discontinuation notifications will be issued accordingly. We apologize for any inconvenience caused.

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.

<b>Central Part Number</b>	<b>Replacement</b>
CBRSDSH5-40	CBRSDSH2-40
CBRSDSH5-60	CBRSDSH2-60
CBR10-010	CBR10-010P
CBR10-020	CBR10-020P
CBR10-040	CBR10-040P
CBR10-080	CBR10-080P
CBR25-010	CBR25-010P
CBR25-020	CBR25-020P
CBR25-040	CBR25-040P
CBR25-060	CBR25-060P
CBR25-080	CBR25-080P
CBR25-100	CBR25-100P
CBR35-010	CBR35-010P
CBR35-020	CBR35-020P
CBR35-040	CBR35-040P
CBR35-060	CBR35-060P
CBR35-100	CBR35-100P
CCLHM080	CMJH080
CCLHM100	CMJH100
CCLHM120	CMJH120
CCLHM150	CMJH150
CCLM0035	N/A
CCLM0130	CMJ0130
CCLM0300	CMJ0300
CCLM0500	CMJ0500
CCLM0750	CMJ0750
CCLM1000	CMJ1000
CCLM1500	CMJ1500
CCLM2000	CMJ2000
CCLM2700	CMJ2700
CCLM3500	CMJ3500
CCLM4500	CMJ4500
CCLM5750	CMJ5750
CED2838E	N/A
CLLR1-01	CMR1-01M

\*\*\* 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

<b>PDN ID:</b>	PDN01000
<b>Notification Date:</b>	8/03/15
<b>Last Buy Date:</b>	Varies
<b>Last Shipment Date</b>	Varies

\*\*\* CONTINUED FROM PRIOR PAGE \*\*\*

<b>Central Part Number</b>	<b>Replacement</b>
CLLR1-02	CMR1-02M
CLLR1-04	CMR1-04M
CLLR1-06	CMR1-06M
CLLR1-10	CMR1-10M
CLLR1F-02	CMR1F-02M
CLLR1F-06	CMR1F-06M
CLLR1F-10	CMR1F-10M
CLLR1U-01	CMR1U-01M
CLLR1U-02	CMR1U-02M
CLLR1U-04	CMR1U-04M
CLLSH1-20	CMSH1-20M
CLLSH1-40	CMSH1-40M
CLLSH1-60	CMSH1-60M
CLL4104	CMHZ4104
CLL4116	CMHZ4116
CLL4122	CMHZ4122
CLL457A	CMHD457A
CLL459A	CMHD459A
CLL4614	CMHZ4614
CLL4615	CMHZ4615
CLL4617	CMHZ4617
CLL4619	CMHZ4619
CLL4620	CMHZ4620
CLL4625	CMHZ4625
CLL4626	CMHZ4626
CLL4627	CMHZ4627
CLL4678	CMHZ4678
CLL4679	CMHZ4679
CLL4680	CMHZ4680
CLL4681	CMHZ4681
CLL4682	CMHZ4682
CLL4683	CMHZ4683
CLL4684	CMHZ4684
CLL4685	CMHZ4685
CLL4686	CMHZ4686
CLL4687	CMHZ4687
CLL4688	CMHZ4688
CLL4689	CMHZ4689
CLL4690	CMHZ4690
CLL4690C	CMHZ4690C
CLL4691	CMHZ4691
CLL4692	CMHZ4692
CLL4693	CMHZ4693
CLL4694	CMHZ4694
CLL4694C	CMHZ4694C

\*\*\* 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

<b>PDN ID:</b>	PDN01000
<b>Notification Date:</b>	8/03/15
<b>Last Buy Date:</b>	Varies
<b>Last Shipment Date</b>	Varies

\*\*\* CONTINUED FROM PRIOR PAGE \*\*\*

<b>Central Part Number</b>	<b>Replacement</b>
CLL4696	CMHZ4696
CLL4697	CMHZ4697
CLL4698	CMHZ4698
CLL4699	CMHZ4699
CLL4700	CMHZ4700
CLL4701	CMHZ4701
CLL4702	CMHZ4702
CLL4703	CMHZ4703
CLL4704	CMHZ4704
CLL4705	CMHZ4705
CLL4707	CMHZ4707
CLL4708	CMHZ4708
CLL4709	CMHZ4709
CLL4709C	CMHZ4709C
CLL4711	CMHZ4711
CLL4713	CMHZ4713
CLL4714	CMHZ4714
CLL4715	CMHZ4715
CLL4716	CMHZ4716
CLL4717	CMHZ4717
CLL4728	CLL4728A
CLL5001	CMPD5001
CLL5221B	CMHZ5221B
CLL5222A	N/A
CLL5222B	CMHZ5222B
CMEDA-6I	N/A
CMPD300	CMPD300 BK
CMPD400	CMPD400 BK
CMPTA42	CMPTA42E
CMPTA92	CMPTA92E
CMPT3640	CMPT4209
CMWSH-4	N/A
CMZ5337D	N/A
CM2894A	CM4209
CN1671A	N/A
CN5281B	1N5281B
CN695	N/A
CR150-005	N/A
CR150-005R	N/A
CR150-010	N/A
CR150-020	N/A
CR150-040	N/A
CR150-040R	N/A
CR150-080	N/A
CR150-080R	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

<b>PDN ID:</b>	PDN01000
<b>Notification Date:</b>	8/03/15
<b>Last Buy Date:</b>	Varies
<b>Last Shipment Date</b>	Varies

\*\*\* CONTINUED FROM PRIOR PAGE \*\*\*

<b>Central Part Number</b>	<b>Replacement</b>
CR250-020	N/A
CR250-080	N/A
CR250-080R	N/A
CR250-120	N/A
CR250-120R	N/A
CR250-2	N/A
CR250-3	N/A
CR250F-3	N/A
CR250F-4	N/A
CR3-005	CR3-005GPP
CR3-010	CR3-010GPP
CR3-020	CR3-020GPP
CR3-040	CR3-040GPP
CR3-060	CR3-060GPP
CR3-080	CR3-080GPP
CR3-100	CR3-100GPP
CR3-120	CR3-120GPP
CR3U-100	N/A
CR6AF2	CR6AF2GPP
CR6A4	CR6A4GPP
CSMS15	N/A
CSMS24	N/A
CSTB162	N/A
CSTB165	N/A
CSTB362	N/A
CSTB365	N/A
CSTB462	N/A
CSTB465	N/A
CSTB567	N/A
CSTB568	N/A
CSTB569	N/A
CTLDM7003T-M563D	N/A
CTLDM7120-M832D	CTLDM7120-M832DS
CTLDM7181-M832D	N/A
CTLDM8120-M832D	CTLDM8120-M832DS
CTLM1034-M832D	N/A
CTLM1074-M832D	N/A
CTLM3410-M832D	N/A
CTLM3474-M832D	N/A
CTLM7110-M832D	N/A
CTLM7410-M832D	N/A
CTLM8110-M832D	N/A
CTLSH1-40M322	CTLSH1-40M322S
CTLSH1-40M563	N/A
CTLSH1-40M832D	CTLSH1-40M832DS

\*\*\* 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

<b>PDN ID:</b>	PDN01000
<b>Notification Date:</b>	8/03/15
<b>Last Buy Date:</b>	Varies
<b>Last Shipment Date</b>	Varies

\*\*\* CONTINUED FROM PRIOR PAGE \*\*\*

<b>Central Part Number</b>	<b>Replacement</b>
CTLSH10-60M856	N/A
CTLSH2-40M832	N/A
CTLSH3-30M833	CTLSH3-30M833S
CTLSH5-40M833	CTLSH5-40M833S
CTLS5064-M532	N/A
CTLS5064R-M532	N/A
CTLT3410-M521	N/A
CTLT5551-M832D	N/A
CTLT7410-M521	N/A
CTLT853-M833	CTLT853-M833S
CTLT953-M833	CTLT953-M833S
CYTA44D	N/A
CYTA4494D	N/A
CYT5551D	N/A
CYT5551HCD	N/A
CYT7090LD	N/A
CZT900K	N/A
MMPQ2222A	N/A
MMPQ2907A	N/A
MMPQ3904	N/A
MMPQ3906	N/A
MMPQ6502	N/A
MM4258	CM4209
PN2894	PN4209
PN3640	PN4209
PN4258	PN4209
PN5910	PN4209
1N277	N/A
1N34A	N/A
1N355	N/A
1N4444	1N4148
1N4634	N/A
1N4944	1N4946
1N5333B	N/A
1N5334B	CZ5334B
1N5335B	CZ5335B
1N5336B	CZ5336B
1N5337B	CZ5337B
1N5338B	CZ5338B
1N5339B	CZ5339B
1N5339C	N/A
1N5340B	CZ5340B
1N5341B	CZ5341B
1N5341C	N/A
1N5342B	CZ5342B

\*\*\* 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

PDN ID:	PDN01000
Notification Date:	8/03/15
Last Buy Date:	Varies
Last Shipment Date	Varies

\*\*\* CONTINUED FROM PRIOR PAGE \*\*\*

Central Part Number	Replacement
1N5342C	N/A
1N5343B	CZ5343B
1N5343C	N/A
1N5344B	CZ5344B
1N5345B	CZ5345B
1N5346B	CZ5346B
1N5347B	CZ5347B
1N5348B	CZ5348B
1N5349B	CZ5349B
1N5350B	CZ5350B
1N5350C	N/A
1N5351B	CZ5351B
1N5351C	N/A
1N5352B	CZ5352B
1N5355B	CZ5355B
1N5356B	CZ5356B
1N5357B	CZ5357B
1N5358B	CZ5358B
1N5359B	CZ5359B
1N5360B	CZ5360B
1N5361B	CZ5361B
1N5362B	CZ5362B
1N5364B	CZ5364B
1N5365B	CZ5365B
1N5368B	CZ5368B
1N5370B	CZ5370B
1N5373B	CZ5373B
1N5374B	CZ5374B
1N5375B	CZ5375B
1N5376B	CZ5376B
1N5377B	CZ5377B
1N5378B	CZ5378B
1N5380B	CZ5380B
1N5382B	CZ5382B
1N5383B	CZ5383B
1N5384B	CZ5384B
1N5386B	CZ5386B
1N5387B	CZ5387B
1N5388B	CZ5388B
1N5416	1N5419
1N5417	1N5419
1N5418	1N5419
1N5559B	1N4736A
1N5565B	1N4742A
1N5586B	1N4763A

\*\*\* 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

PDN ID:	PDN01000
Notification Date:	8/03/15
Last Buy Date:	Varies
Last Shipment Date	Varies

\*\*\* CONTINUED FROM PRIOR PAGE \*\*\*

Central Part Number	Replacement
1N60	N/A
1N6263	CMDD6263
1N6373	1.5CE6.8A
1N64	N/A
1N645	CN645
1N647	CN647
1N649	CN649
1N67A	N/A
1N774	N/A
1N821A	CMKTC825A
1N823A	CMKTC825A
1N823A DO-7	CMKTC825A
1N825A	CMKTC825A
1N825A DO-7	CMKTC825A
1N827A	CMKTC825A
1N827A DO-7	CMKTC825A
1N829A	CMKTC825A
1N829A DO-7	CMKTC825A
1N87A	N/A
1N888	N/A
1N914B	1N4448
2N2411	CM4209
2N2412	CM4209
2N2609	2N5116
2N2646	2N4870
2N2840	N/A
2N2894	CM4209
2N3012	CM4209
2N3055H	N/A
2N3249	CM4209
2N3546	CM4209
2N3724A	2N3725A
2N3829	CM4209
2N4208	CM4209
2N4209	CM4209
2N5057	CM4209
2N5114	2N5116
2N5484	2N5485 H
2N5545	N/A
2N5771	PN4209
2N5950	2N5951
2N869	CM4209
2N869A	CM4209

\*\*\* 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.



<http://www.centrasemi.com>

# Product End of Life Notification

<b>PDN ID:</b>	PDN01000
<b>Notification Date:</b>	8/03/15
<b>Last Buy Date:</b>	Varies
<b>Last Shipment Date</b>	Varies

\*\*\* CONTINUED FROM PRIOR PAGE \*\*\*

<u>Central Part Number</u>	<u>Replacement</u>
----------------------------	--------------------

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).

---

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.