

2N2480
2N2480A

**SILICON
DUAL NPN TRANSISTORS**



TO-78 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N2480 and 2N2480A are dual silicon NPN transistors manufactured by the epitaxial planar process utilizing two individual chips mounted in a hermetically sealed metal case designed for differential amplifier applications.

MARKING: FULL PART NUMBER

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

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Power Dissipation (One Die)
Power Dissipation (Both Dice)
Operating and Storage Junction Temperature

SYMBOL

V_{CB0} 75
 V_{CEO} 40
 V_{EBO} 5.0
 I_C 500
 P_D 300
 P_D 600
 T_J, T_{stg} -65 to +200

UNITS

V
V
V
mA
mW
mW
 $^{\circ}\text{C}$

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

SYMBOL	TEST CONDITIONS	2N2480		2N2480A		UNITS
		MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=60\text{V}$	-	50	-	20	nA
I_{CBO}	$V_{CB}=30\text{V}, T_A=150^{\circ}\text{C}$	-	15	-	15	μA
I_{EBO}	$V_{EB}=5.0\text{V}$	-	50	-	20	nA
BV_{CBO}	$I_C=100\mu\text{A}$	75	-	80	-	V
BV_{CEO}	$I_C=20\text{mA}$	40	-	40	-	V
BV_{EBO}	$I_E=100\mu\text{A}$	5.0	-	5.0	-	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$	-	1.3	-	1.2	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$	-	1.0	-	0.9	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}$	20	-	35	-	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	30	350	50	200	
f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=20\text{MHz}$	50	-	50	-	MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$	-	20	-	18	pF
C_{ib}	$V_{BE}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$	-	-	-	85	pF
h_{ie}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	-	-	1000	5000	Ω
h_{ib}	$V_{CB}=5.0\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	-	-	20	35	Ω
h_{oe}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	-	-	-	16	μS
h_{fe}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	-	-	50	300	
NF	$V_{CE}=10\text{V}, I_C=0.3\text{mA}, R_S=510\Omega, f=1.0\text{kHz}, BW=1.0\text{Hz}$	-	8.0	-	8.0	dB

MATCHING CHARACTERISTICS:

SYMBOL	TEST CONDITIONS	2N2480		2N2480A		UNITS
		MIN	MAX	MIN	MAX	
h_{FE1}/h_{FE2} (Note 1)	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}$	0.8	1.0	0.8	1.0	
h_{FE1}/h_{FE2} (Note 1)	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	0.8	1.0	0.8	1.0	
$ V_{BE1}-V_{BE2} $	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}$	-	10	-	5.0	mV
$ V_{BE1}-V_{BE2} $	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	-	10	-	5.0	mV

Notes: (1) The lowest reading is taken as h_{FE1} .

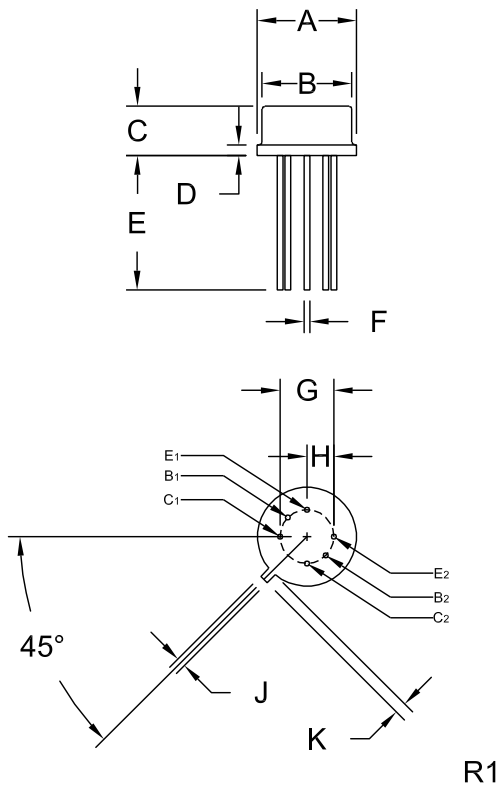
R0 (22-January 2014)

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TO-78 CASE - MECHANICAL OUTLINE



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.335	0.370	8.51	9.40
B (DIA)	0.305	0.335	7.75	8.51
C	0.150	0.185	3.81	4.70
D	-	0.040	-	1.02
E	0.500	-	12.70	-
F (DIA)	0.016	0.021	0.41	0.53
G	0.200		5.08	
H	0.100		2.54	
J	0.028	0.034	0.71	0.86
K	0.029	0.045	0.74	1.14

TO-78 (REV: R1)

MARKING: FULL PART NUMBER

R0 (22-January 2014)

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

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Summary: All transistors manufactured in the TO-78 package are 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.

<u>Central Part Number</u>	<u>Replacement</u>
CEN876	N/A
CEN894	N/A
CEN895	N/A
CEN896	N/A
CEN911	N/A
CEN947	N/A
CEN955 W/DATA	N/A
MD2219A	N/A
MD2369	N/A
MD2369A	N/A
MD2369B	N/A
MD2905	N/A
MD2905A	N/A
MD5179	N/A
MD7000	N/A
MD7001	N/A
MD7003	N/A
MD7003A	N/A
MD7003B	N/A
MD8002	N/A
MD8003	N/A
MD918	N/A
MD918A	N/A
MD918B	N/A
MD984	N/A
2N2060	N/A
2N2060A	N/A
2N2060M	N/A
2N2223	N/A
2N2223A	N/A
2N2453	N/A
2N2453A	N/A
2N2480	N/A
2N2480A	N/A
2N2639	N/A
2N2640	N/A
2N2641	N/A
2N2642	N/A

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<u>Central Part Number</u>	<u>Replacement</u>
2N2643	N/A
2N2644	N/A
2N2652	N/A
2N2652A	N/A
2N2720	N/A
2N2721	N/A
2N2722	N/A
2N2903	N/A
2N2903A	N/A
2N2913	N/A
2N2914	N/A
2N2915	N/A
2N2915A	N/A
2N2916	N/A
2N2916A	N/A
2N2917	N/A
2N2918	N/A
2N2919	N/A
2N2919A	N/A
2N2920	N/A
2N2920A	N/A
2N3726	N/A
2N3727	N/A
2N3806	N/A
2N3807	N/A
2N3808	N/A
2N3809	N/A
2N3810	N/A
2N3810A	N/A
2N3811	N/A
2N3811A	N/A
2N4015	N/A
2N4016	N/A
2N4854	N/A
2N4937	N/A
2N4938	N/A
2N4939	N/A
2N5793	N/A
2N5794	N/A
2N5796	N/A
2N5912	N/A
2N6502	N/A

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PDN01061

1/17/17

7/17/17

1/17/18

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Central Part Number

Replacement

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.