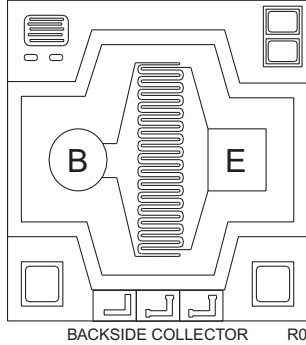


# CP223-2N3866

## NPN - RF Transistor Die

### 0.4 Amp, 30 Volt

The CP223-2N3866 is a silicon NPN RF transistor designed for high frequency amplifier and oscillator applications.



#### MECHANICAL SPECIFICATIONS:

Die Size	21.7 x 21.7 MILS
Die Thickness	9.0 MILS
Base Bonding Pad Size	3.2 MILS DIAMETER
Emitter Bonding Pad Size	3.4 x 3.4 MILS
Top Side Metalization	Al – 30,000Å
Back Side Metalization	Au – 12,000Å
Scribe Alley Width	2.7 MILS
Wafer Diameter	4 INCHES
Gross Die Per Wafer	16,000

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

	SYMBOL		UNITS
Collector-Base Voltage	$V_{CBO}$	55	V
Collector-Emitter Voltage	$V_{CEO}$	30	V
Emitter-Base Voltage	$V_{EBO}$	3.5	V
Continuous Collector Current	$I_C$	0.4	A
Continuous Base Current	$I_B$	2.0	A
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-65 to +150	$^{\circ}\text{C}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CEO}$	$V_{CE}=28\text{V}$		20	$\mu\text{A}$
$I_{CEV}$	$V_{CE}=55\text{V}, V_{BE}(\text{OFF})=1.5\text{V}$		0.1	mA
$I_{EBO}$	$V_{EB}=3.5\text{V}$		0.1	mA
$BV_{CER}$	$I_C=5.0\text{mA}, R_{BE}=10\Omega$	55		V
$BV_{CBO}$	$I_C=500\mu\text{A}$	55		V
$BV_{CEO}$	$I_C=5.0\text{mA}$	30		V
$BV_{EBO}$	$I_E=100\mu\text{A}$	3.5		V
$V_{CE}(\text{SAT})$	$I_C=100\text{mA}, I_B=20\text{mA}$		1.0	V
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=50\text{mA}$	10	200	
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=360\text{mA}$	5.0		
$f_T$	$V_{CE}=15\text{V}, I_C=50\text{mA}, f=200\text{MHz}$	500		MHz
$C_{ob}$	$V_{CB}=28\text{V}, I_E=0, f=1.0\text{MHz}$		3.0	pF
$G_{pe}$	$V_{CC}=28\text{V}, P_{out}=1.0\text{W}, f=400\text{MHz}$ (Figure 1)		10	dB
$\eta$	$V_{CC}=28\text{V}, P_{out}=1.0\text{W}, f=400\text{MHz}$ (Figure 1)		45	%

R0 (22-February 2017)

# CP223-2N3866

NPN - RF Transistor Die

0.4 Amp, 30 Volt

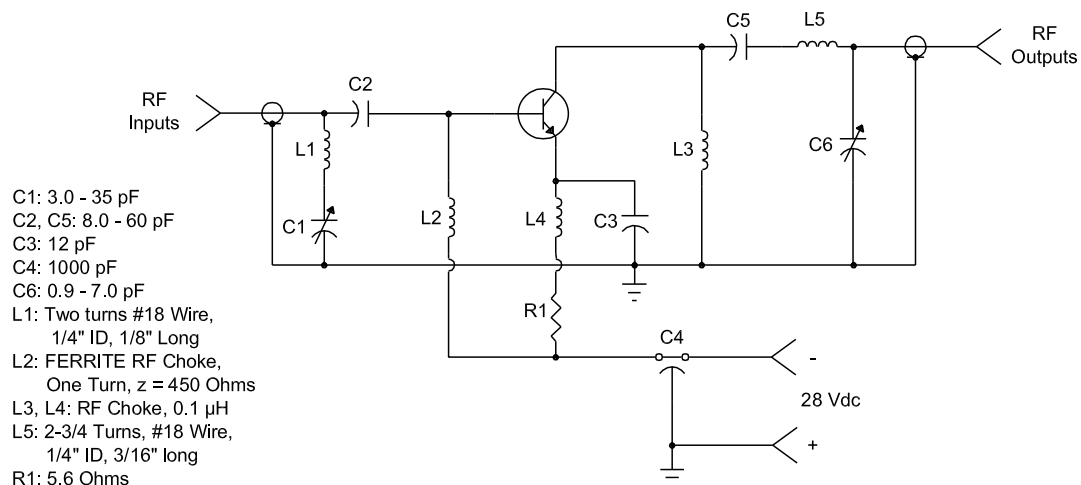
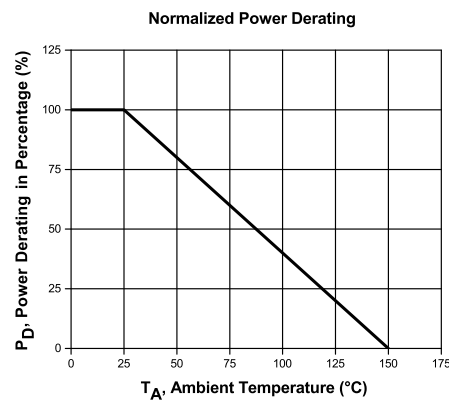
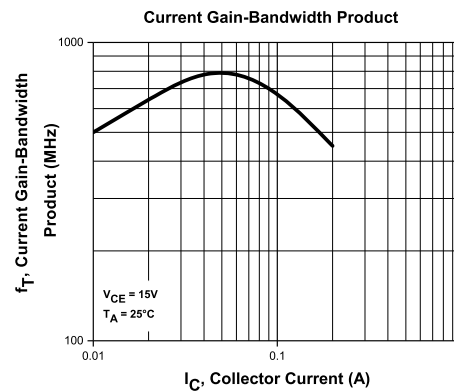
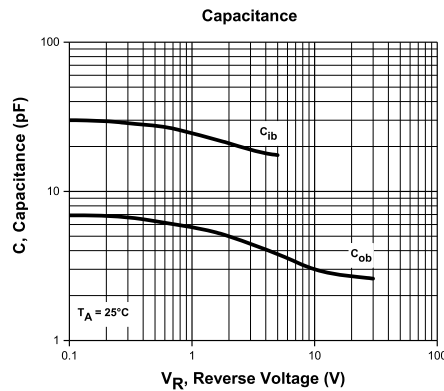
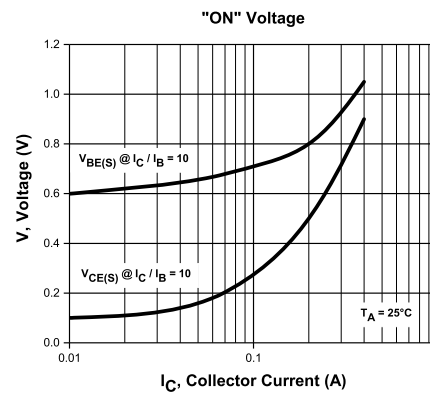
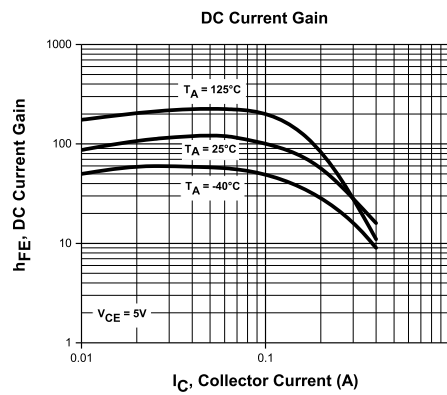


Figure 1. 400MHz Test Circuit

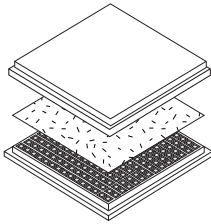
# CP223-2N3866

## Typical Electrical Characteristics



## BARE DIE PACKING OPTIONS

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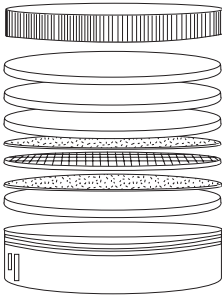


### BARE DIE IN TRAY (WAFFLE) PACK

**CT:** Singulated die in tray (waffle) pack.  
(example: CP211-PART NUMBER-CT)

**CM:** Singulated die in tray (waffle) pack 100% visually inspected as per MIL-STD-750, (method 2072 transistors, method 2073 diodes).  
(example: CP211-PART NUMBER-CM)

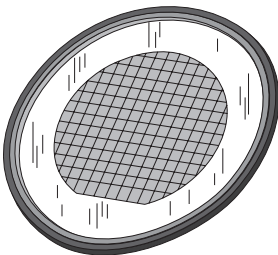
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### UNSAWN WAFER

**WN:** Full wafer, unsawn, 100% tested with reject die inked.  
(example: CP211-PART NUMBER-WN)

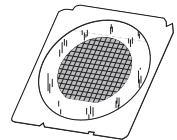
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### SAWN WAFER ON PLASTIC RING

**WR:** Full wafer, sawn and mounted on plastic ring, 100% tested with reject die inked.  
(example: CP211-PART NUMBER-WR)

Please note: Sawn Wafer on Metal Frame (WS) is possible as a special order. Please contact your Central Sales Representative at 631-435-1110.



Visit the Central website for a complete listing of specifications:  
**[www.centrasemi.com/bdspecs](http://www.centrasemi.com/bdspecs)**

## 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

---

### 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).

---

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

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

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

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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.centalsemi.com/terms](http://www.centalsemi.com/terms)



<http://www.centrasemi.com>

## Product End of Life Notification

PDN ID:	PDN01114
Notification Date:	9/06/19
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. 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.

# 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

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.

<b>Central Part Number</b>	<b>Replacement</b>
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

\*\*\* 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>

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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

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

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

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