

2N3713 2N3715  
2N3714 2N3716

**SILICON  
NPN TRANSISTORS**



**TO-3 CASE**



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**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N3713, 2N3714, 2N3715, and 2N3716 are silicon NPN power transistors manufactured by the epitaxial-base process, mounted in a hermetically sealed metal package designed for medium speed switching and amplifier applications.

**MARKING: FULL PART NUMBER**

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

	2N3713	2N3714	UNITS
Collector-Base Voltage	80	100	V
Collector-Emitter Voltage	60	80	V
Emitter-Base Voltage	7.0		V
Continuous Collector Current	10		A
Continuous Base Current	4.0		A
Power Dissipation	150		W
Operating and Storage Junction Temperature	-65 to +200		$^\circ\text{C}$
Thermal Resistance	1.17		$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{CEV}$	$V_{CE}=\text{Rated } V_{CBO}, V_{BE}=1.5\text{V}$			1.0	mA
$I_{CEV}$	$V_{CE}=\text{Rated } V_{CEO}, V_{BE}=1.5\text{V}, T_C=150^\circ\text{C}$			10	mA
$I_{EBO}$	$V_{EB}=7.0\text{V}$			5.0	mA
$BV_{CEO}$	$I_C=200\text{mA}$ (2N3713, 2N3715)	60			V
$BV_{CEO}$	$I_C=200\text{mA}$ (2N3714, 2N3716)	80			V
$V_{CE(SAT)}$	$I_C=5.0\text{A}, I_B=0.5\text{A}$ (2N3713, 2N3714)			1.0	V
$V_{CE(SAT)}$	$I_C=5.0\text{A}, I_B=0.5\text{A}$ (2N3715, 2N3716)			0.8	V
$V_{BE(SAT)}$	$I_C=5.0\text{A}, I_B=0.5\text{A}$ (2N3713, 2N3714)			2.0	V
$V_{BE(SAT)}$	$I_C=5.0\text{A}, I_B=0.5\text{A}$ (2N3715, 2N3716)			1.5	V
$V_{BE(ON)}$	$V_{CE}=2.0\text{V}, I_C=3.0\text{A}$			1.5	V
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=1.0\text{A}$ (2N3713, 2N3714)	40		120	
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=1.0\text{A}$ (2N3715, 2N3716)	50		150	
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=3.0\text{A}$ (2N3713, 2N3714)	15			
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=3.0\text{A}$ (2N3715, 2N3716)	30			
$f_T$	$V_{CE}=10\text{V}, I_C=0.5\text{A}, f=1.0\text{MHz}$	4.0			MHz
$t_r$	$I_C=5.0\text{A}, I_{B1}=I_{B2}=0.5\text{A}$		0.4		$\mu\text{s}$
$t_s$	$I_C=5.0\text{A}, I_{B1}=I_{B2}=0.5\text{A}$		0.3		$\mu\text{s}$
$t_f$	$I_C=5.0\text{A}, I_{B1}=I_{B2}=0.5\text{A}$		0.4		$\mu\text{s}$

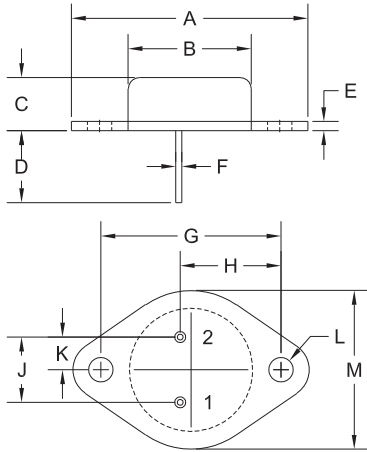
R2 (18-June 2013)

2N3713 2N3715  
 2N3714 2N3716

SILICON  
 NPN TRANSISTORS



TO-3 CASE - MECHANICAL OUTLINE



R2

SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.516	1.573	38.50	39.96
B (DIA)	0.748	0.875	19.00	22.23
C	0.250	0.450	6.35	11.43
D	0.433	0.516	11.00	13.10
E	0.054	0.065	1.38	1.65
F	0.035	0.045	0.90	1.15
G	1.177	1.197	29.90	30.40
H	0.650	0.681	16.50	17.30
J	0.420	0.440	10.67	11.18
K	0.205	0.225	5.21	5.72
L (DIA)	0.151	0.172	3.84	4.36
M	0.984	1.050	25.00	26.67

TO-3 (REV: R2)

LEAD CODE:

- 1) Base
- 2) Emitter
- Case) Collector

MARKING:

FULL PART NUMBER

R2 (18-June 2013)

## 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)
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- 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

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