

NPN LOW NOISE SILICON MICROWAVE TRANSISTOR

PRODUCT DATA SHEET

FEATURES:

- High Gain Bandwidth Product
 $f_t = 12 \text{ GHz typ @ } I_C = 30\text{mA}$
- Low Noise Figure
 1.4 dB typ at 1.0 GHz
 1.7 dB typ at 2.0 GHz
- High Gain
 $|S_{21}|^2 = 16.9 \text{ dB @ } 1.0 \text{ GHz}$
 12.0 dB @ 2.0 GHz
- Dice, Plastic, Hermetic and Surface Mount packages available

PERFORMANCE DATA:

- Electrical Characteristics ($T_A = 25^\circ\text{C}$)

DESCRIPTION AND APPLICATIONS:

Bipolarics' BRF630 is a high performance silicon bipolar transistor intended for use in low noise applications at VHF, UHF and microwave frequencies. These applications include narrowband and wideband amplifiers, oscillators and micropower transmitters. Typical applications include cellular telephone preamplifiers/mixers, CATV amplifiers and Part 15 receivers and transmitters. Commercial plastic, surface mount and hermetic (including Stripline) packaging options make this device very versatile; from consumer product to space flight.

Absolute Maximum Ratings:

SYMBOL	PARAMETERS	RATING	UNITS
V_{CBO}	Collector-Base Voltage	7	V
V_{CEO}	Collector-Emitter Voltage	7	V
V_{EBO}	Emitter-Base Voltage	1.5	V
I_C	Collector Current	60	mA
T_J (1)	Junction Temperature	200	$^\circ\text{C}$
T_{STG}	Storage Temperature	-65 to 150	$^\circ\text{C}$

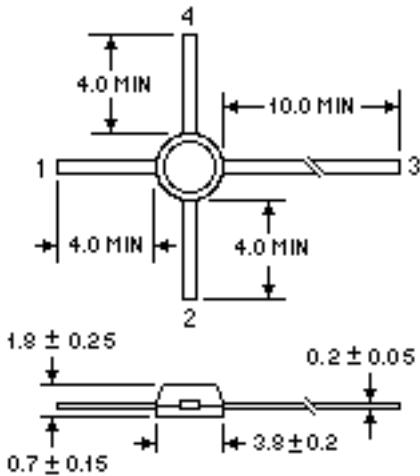
(1) Depends on package

SYMBOL	PARAMETERS & CONDITIONS $V_{CE} = 8\text{V}, I_C = 25 \text{ mA}$ unless stated	UNIT	MIN.	TYP.	MAX.
f_t	Gain Bandwidth Product	GHz		12.0	
$ S_{21} ^2$	Insertion Power Gain:	dB		16.9	
	$f = 1.0 \text{ GHz}$	dB		12.0	
P_{1dB}	Power output at 1dB compression:	dBm		18.0	
	$f = 1.0 \text{ GHz}$				
G_{1dB}	Gain at 1dB compression:	dBm		15.0	
	$f = 1.0 \text{ GHz}$				
NF	Noise Figure: $V_{CE} = 8\text{V}, I_C = 10\text{mA}$	dB		1.4	
h_{FE}	Forward Current Transfer Ratio: $V_{CE} = 8\text{V}, I_C = 10 \text{ mA}$		30	150	300
I_{CBO}	Collector Cutoff Current : $V_{CB} = 8\text{V}$	μA			0.2
I_{EBO}	Emitter Cutoff Current : $V_{EB} = 1\text{V}$	μA			1.0
C_{CB}	Collector Base Capacitance: $V_{CB} = 8\text{V}$	pF		0.25	
	$f = 1\text{MHz}$				

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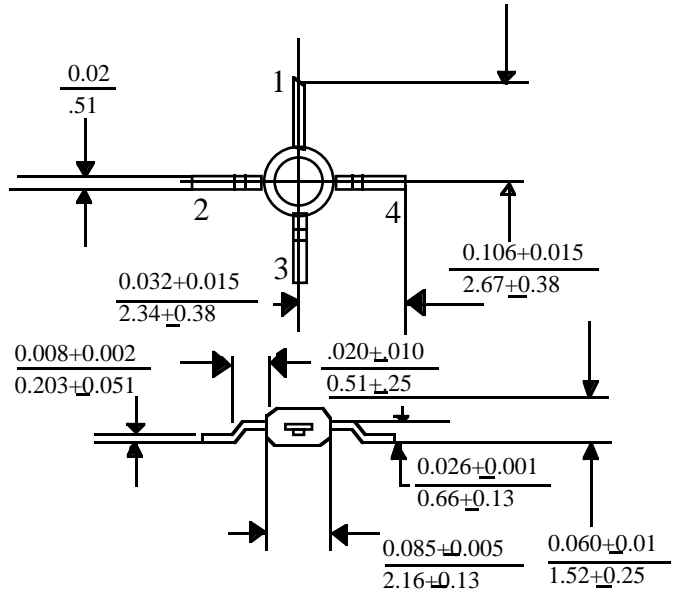
BRF63004

Package Style 01: 0.145" Plastic Macro-X



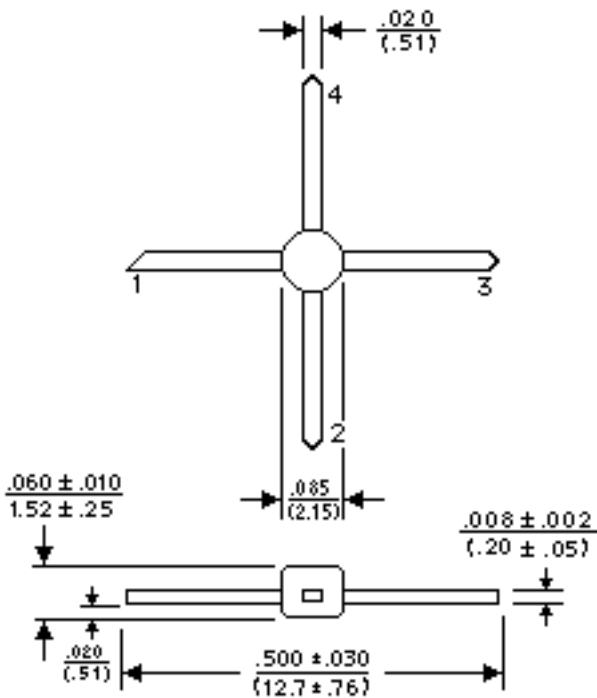
BRF63086

Package Style 86: 0.085" Plastic Micro-X, Surface Mount



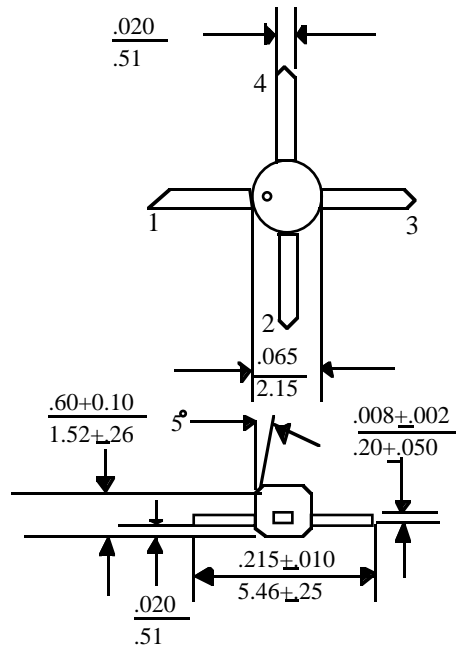
BRF6385

Package Style 85: 0.085" Plastic Micro-X



BRF63087

Package Style 87: 0.085" Plastic Micro-X, Short Lead



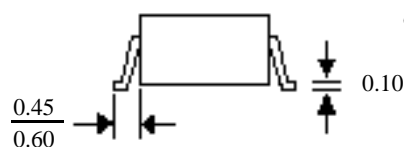
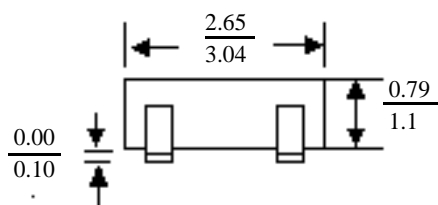
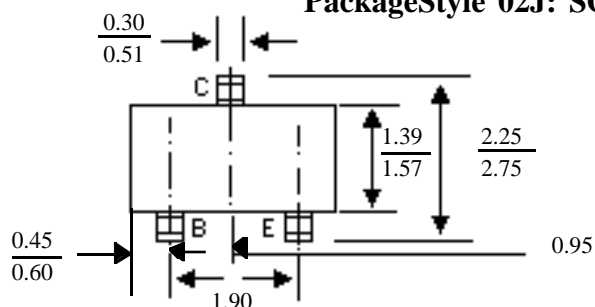
BIPOLARICS, INC.

Part Number BRF630

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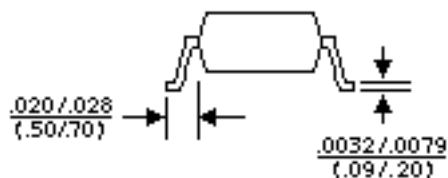
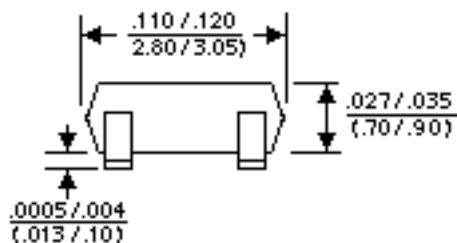
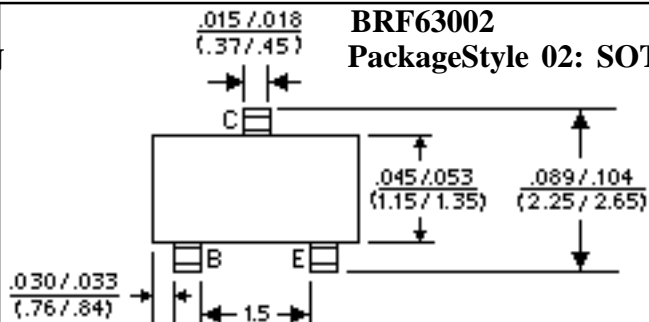
BRF63002J

PackageStyle 02J: SOT-23J



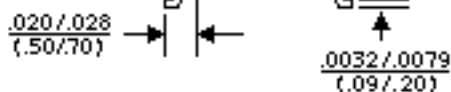
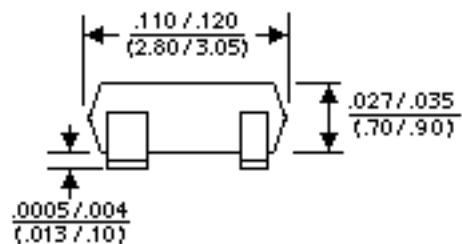
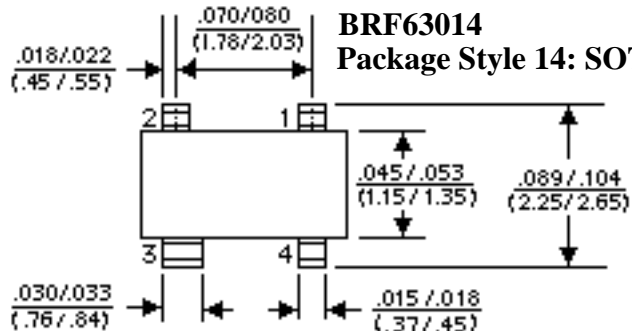
BRF63002

PackageStyle 02: SOT-23



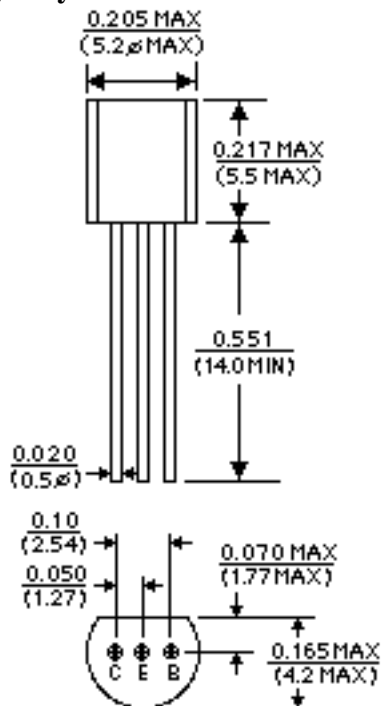
BRF63014

Package Style 14: SOT-143



BRF63092

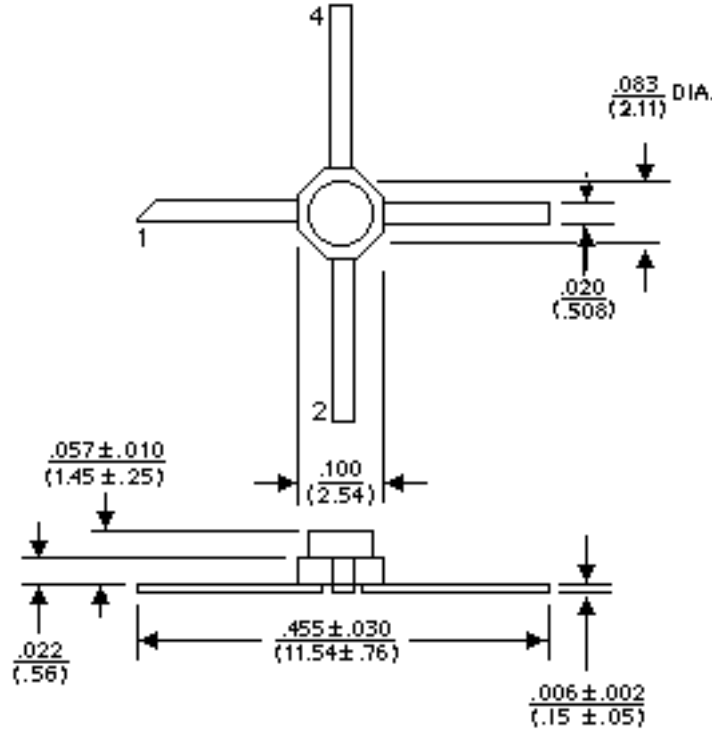
Package Style 92: TO-92



NPN LOW NOISE SILICON MICROWAVE TRANSISTOR

BRF63035

Package Style 35: Micro-X 0.085" Ceramic



LEAD	1	2	3	4
Package Style 14, 85, 35 & 04	Base	Emitter	Collector	Emitter

BIPOLARICS, INC.
 46766 Lakeview Blvd.
 Fremont, CA 94538
 Phone: (510)226-6565 FAX: (510) 226-6765

NOTES: (unless otherwise specified)

1. Dimensions are $\frac{\text{in}}{\text{mm}}$
2. Tolerances:
 in .xxx = $\pm .005$
 mm .xx = $\pm .13$
3. All dimensions nominal; subject to change without notice