BIPOLARICS, INC. Part Number BRF640

NPN LOW NOISE SILICON MICROWAVE TRANSISTOR

PRODUCT DATA SHEET

FEATURES:

- High Gain Bandwidth Product
  f_t = 10 GHz typ @ I_C = 40mA
- 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 dB @ 1.0 GHz
  12.0 dB @ 2.0 GHz
- Dice, Plastic, Hermetic and Surface Mount packages available

PERFORMANCE DATA:

- Electrical Characteristics (T_A = 25°C)

DESCRIPTION AND APPLICATIONS:

Bipolarics' BRF640 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	80	mA
T_J (1)	Junction Temperature	200	°C
T_{STG}	Storage Temperature	-65 to 150	°C

(1) Depends on package

SYMBOL	PARAMETERS & CONDITIONS V_{CE} = 8V, I_C = 25 mA unless stated		UNIT	MIN.	TYP.	MAX.
f_t	Gain Bandwidth Product		GHz		12.0	
$\|S_{21}\|^2$	Insertion Power Gain:	f = 1.0 GHz f = 2.0 GHz	dB dB		16.9 12.0	
P_{1dB}	Power output at 1dB compression:	f = 1.0 GHz	dBm		19.0	
G_{1dB}	Gain at 1dB compression:	f = 1.0 GHz	dBm		15.0	
NF	Noise Figure: V_{CE} = 8V, I_C = 10mA	f = 1.0 GHz	dB		1.4	
h_{FE}	Forward Current Transfer Ratio: V_{CE} = 8V, I_C =10 mA	f = 1MHz		30	150	300
I_{CBO}	Collector Cutoff Current : V_{CB} = 8V		µA			0.2
I_{EBO}	Emitter Cutoff Current : V_{EB} = 1V		µA			1.0
C_{CB}	Collector Base Capacitance: V_{CB} = 8V	f = 1MHz	pF		0.30	

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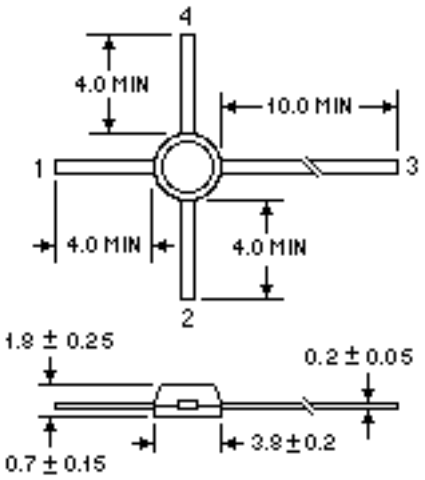
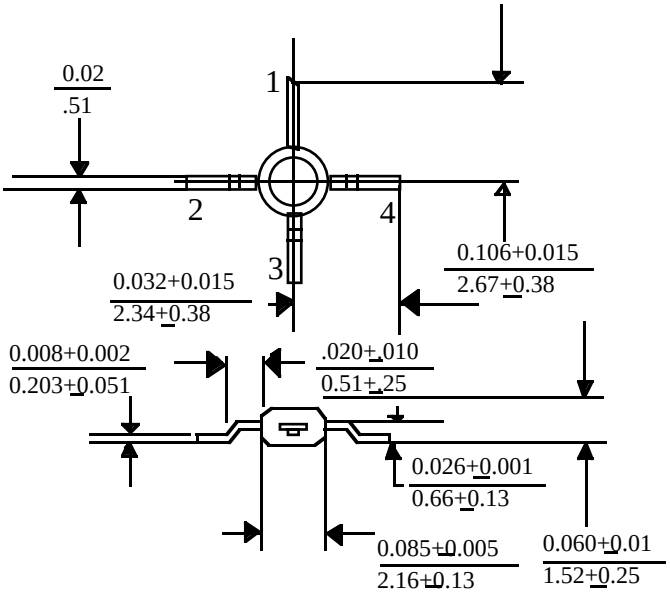
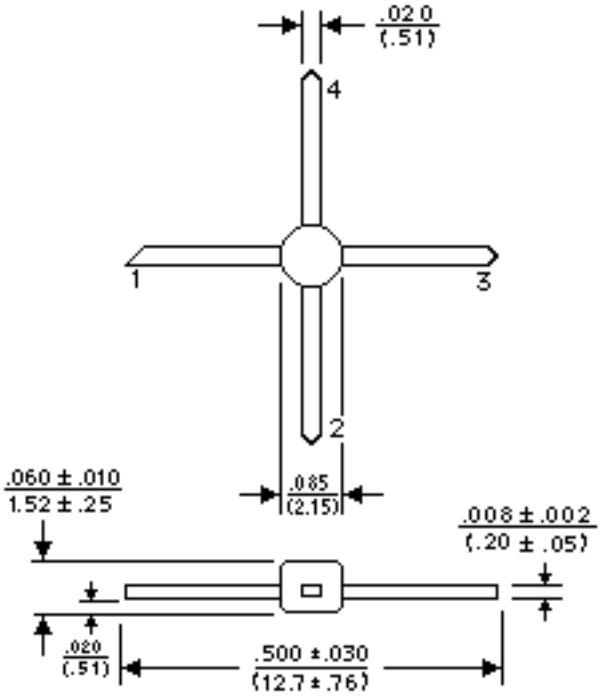
BRF64004
Package Style 04: 0.145" Plastic Macro-X



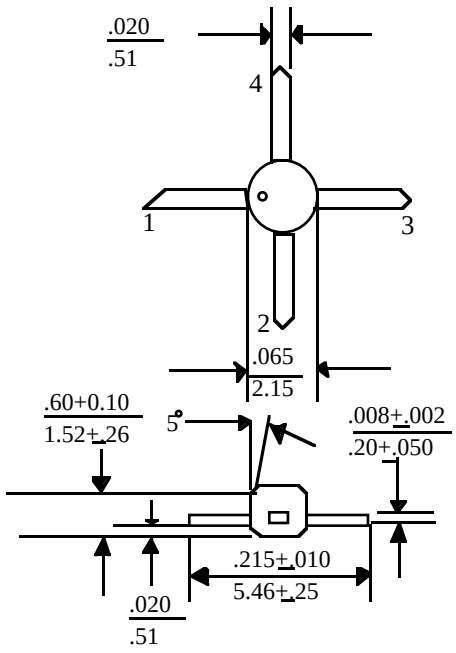
BRF64086
Package Style 86: 0.085" Plastic Micro-X, Surface Mount



BRF6485
PackageStyle 85: 0.085" Plastic Micro-X



BRF64084
Package Style 84: 0.085" Plastic Micro-X, Short Lead



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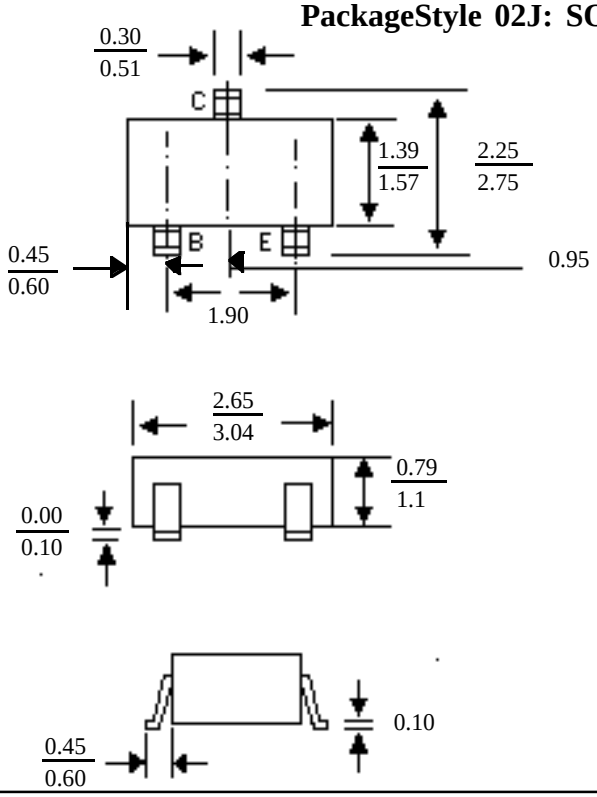
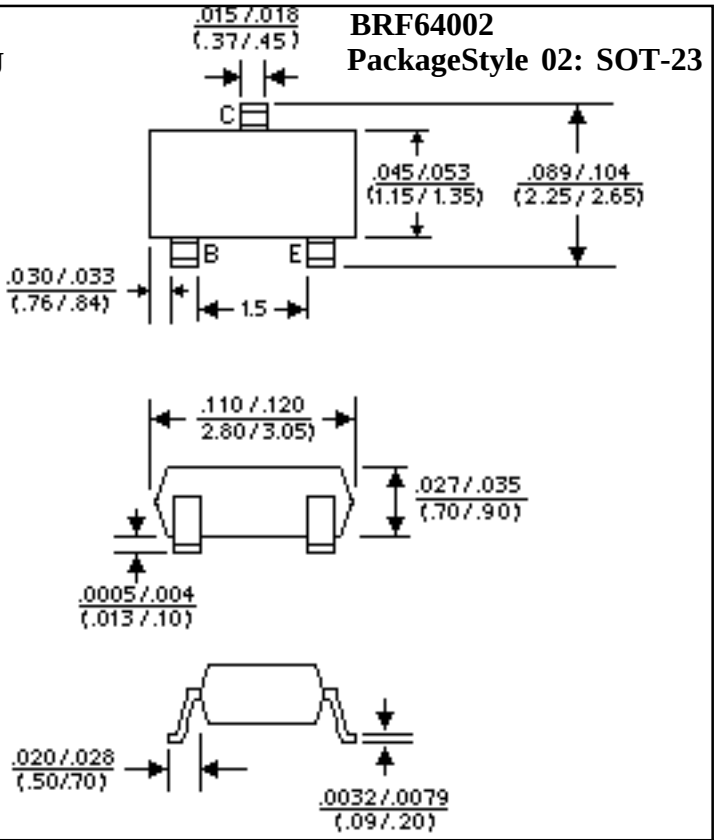
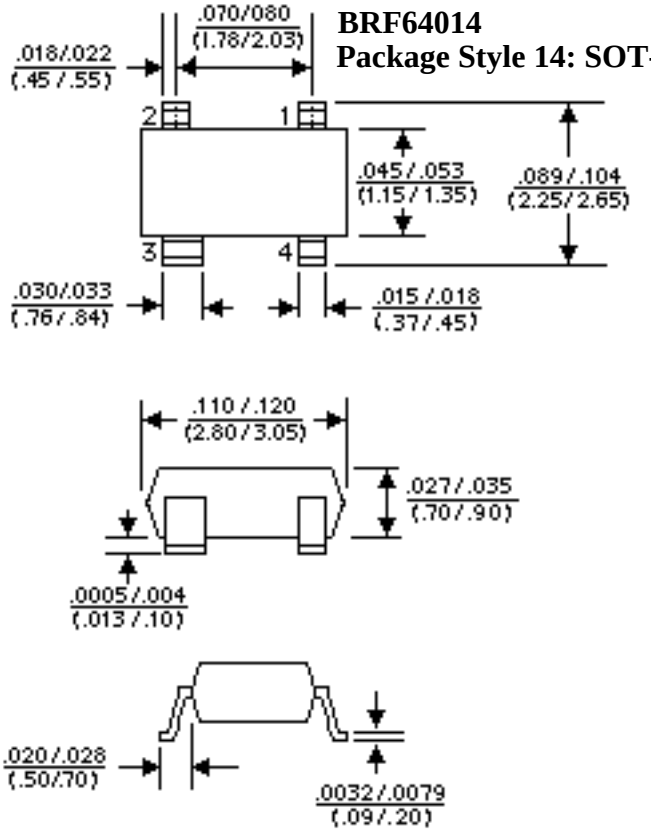
BRF64002J
PackageStyle 02J: SOT-23J



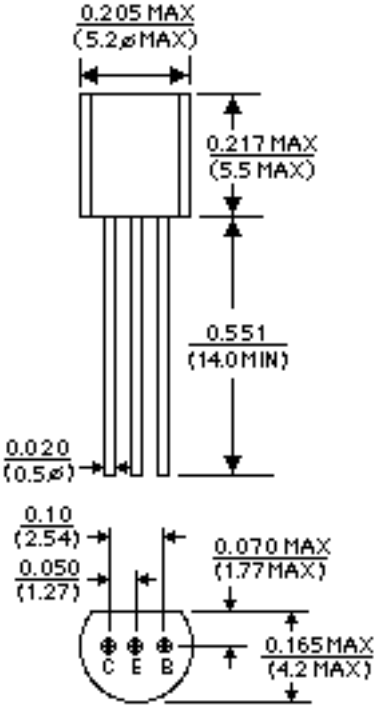
BRF64002
PackageStyle 02: SOT-23



BRF64014
Package Style 14: SOT-143



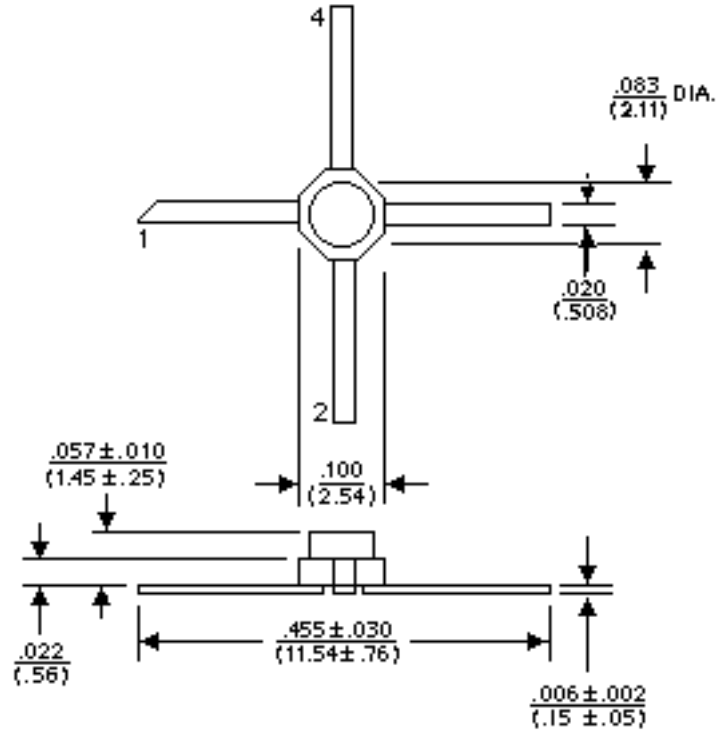
BRF64092
Package Style 92: TO-92



BIPOLARICS, INC. Part Number BRF640

NPN LOW NOISE SILICON MICROWAVE TRANSISTOR

BRF64035
Package Style 35: Micro-X 0.085" Ceramic



LEAD	1	2	3	4
Package Style 14, 85, 35 & 10	Base	Emitter	Collector	Emitter

BIPOLARICS, INC.
602 Charcot Ave.
Fremont, CA 95131
Phone: (408) 456-0430 FAX: (408) 456-0431

NOTES: (unless otherwise specified)

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