

# SILICON TRANSISTOR 2SC1623

# AUDIO FREQUENCY GENERAL PURPOSE AMPLIFIER NPN SILICON EPITAXIAL TRANSISTOR MINI MOLD

#### **FEATURES**

High DC Current Gain: hfe = 200 TYP.
 (Vce = 6.0 V, Ic = 1.0 mA)

• High Voltage: VcEo = 50 V

#### ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current (TA = 25 °C)

Collector to Base Voltage Vсво 60 ٧ Collector to Emitter Voltage 50 Vceo ٧ Emitter to Base Voltage 5.0  $V_{EBO}$ V Collector Current (DC) lс 100 mΑ

Maximum Power Dissipation

**Total Power Dissipation** 

at 25 °C Ambient Temperature P<sub>T</sub> 200 mW

Maximum Temperatures

Junction Temperature  $T_j$  150 °C Storage Temperature Range  $T_{stg}$  -55 to +150 °C

# PACKAGE DIMENSIONS in millimeters 2.8 ± 0.2 1.5 0.65 ± 0.1 0.6

#### ELECTRICAL CHARACTERISTICS (TA = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	Ісво			0.1	μΑ	Vcb = 60 V, IE = 0
Emitter Cutoff Current	Ієво			0.1	μΑ	V <sub>EB</sub> = 5.0 V, I <sub>C</sub> = 0
DC Current Gain	hfe	90	200	600		Vce = 6.0 V, Ic = 1.0 mA*
Collector Saturation Voltage	V <sub>CE(sat)</sub>		0.15	0.3	V	Ic = 100 mA, I <sub>B</sub> = 10 mA*
Base to Saturation Voltage	V <sub>BE(sat)</sub>		0.86	1.0	V	Ic = 100 mA, I <sub>B</sub> = 10 mA*
Base Emitter Voltage	VBE	0.55	0.62	0.65	V	Vce = 6.0 V, Ic = 1.0 mA*
Gain Bandwidth Product	f⊤		250		MHz	Vce = 6.0 V, Ie = -10 mA
Output Capacitance	Cob		3.0		pF	Vcb = 6.0 V, IE = 0, f = 1.0 MHz

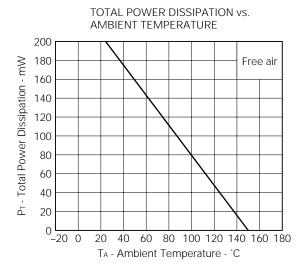
<sup>\*</sup> Pulsed: PW  $\leq$  350  $\mu$ s, Duty Cycle  $\leq$  2 %

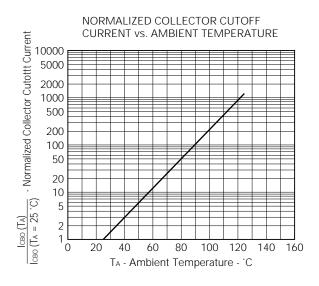
#### hfe Classification

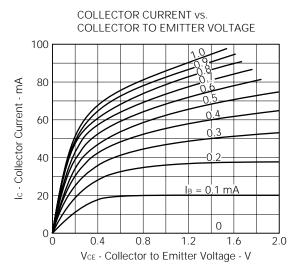
Marking	L4	L5	L6	L7
hfe	90 to 180	135 to 270	200 to 400	300 to 600

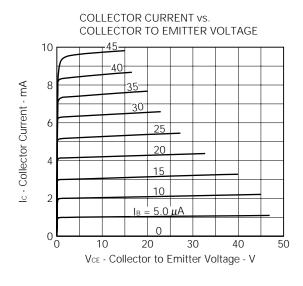


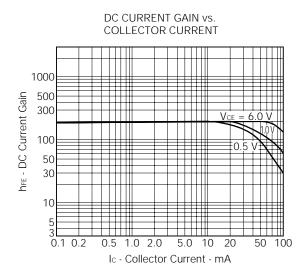
#### TYPICAL CHARACTERISTICS (TA = 25 °C)

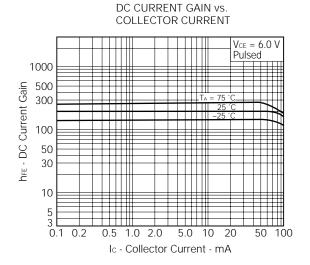




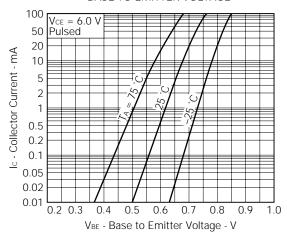




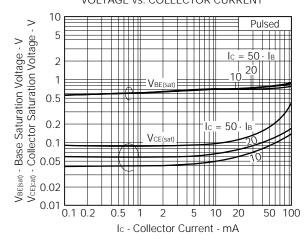




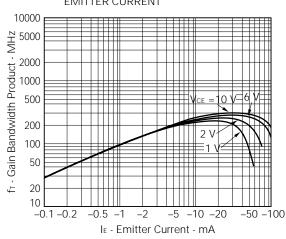
## COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



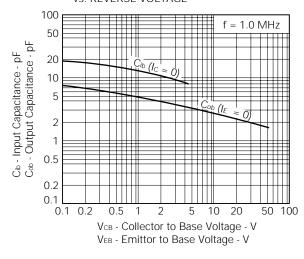
## COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



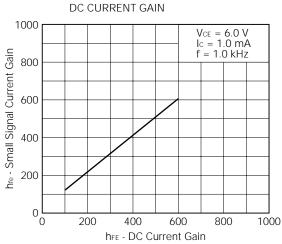
# GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



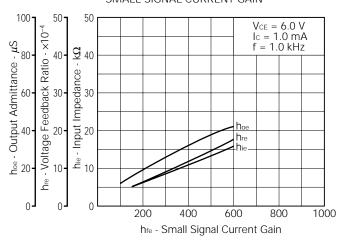
# INPUT AND OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



#### SMALL SIGNAL CURRENT GAIN vs.

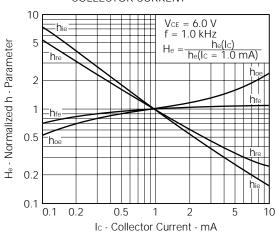


#### INPUT IMPEDANCE VOLTAGE FEEDBACK RATIO AND OUTPUT ADMITTANCE vs. SMALL SIGNAL CURRENT GAIN

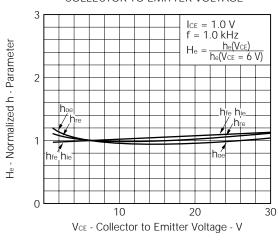




# NORMALIZED h-PARAMETER vs. COLLECTOR CURRENT



# NORMALIZED h-PARAMETER vs. COLLECTOR TO EMITTER VOLTAGE



[MEMO]

[MEMO]

No part of this document may be copied or reproduced in any form or by any means without the prior written consent of NEC Corporation. NEC Corporation assumes no responsibility for any errors which may appear in this document.

NEC Corporation does not assume any liability for infringement of patents, copyrights or other intellectual property rights of third parties by or arising from use of a device described herein or any other liability arising from use of such device. No license, either express, implied or otherwise, is granted under any patents, copyrights or other intellectual property rights of NEC Corporation or others.

While NEC Corporation has been making continuous effort to enhance the reliability of its semiconductor devices, the possibility of defects cannot be eliminated entirely. To minimize risks of damage or injury to persons or property arising from a defect in an NEC semiconductor device, customer must incorporate sufficient safety measures in its design, such as redundancy, fire-containment, and anti-failure features.

NEC devices are classified into the following three quality grades:

"Standard", "Special", and "Specific". The Specific quality grade applies only to devices developed based on a customer designated "quality assurance program" for a specific application. The recommended applications of a device depend on its quality grade, as indicated below. Customers must check the quality grade of each device before using it in a particular application.

Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

The quality grade of NEC devices in "Standard" unless otherwise specified in NEC's Data Sheets or Data Books. If customers intend to use NEC devices for applications other than those specified for Standard quality grade, they should contact NEC Sales Representative in advance.

Anti-radioactive design is not implemented in this product.

M4 94.11

This datasheet has been download from:

www.datasheetcatalog.com

Datasheets for electronics components.