NEC

SILICON TRANSISTOR
2SC1623A

NPN SILICON EPITAXIAL TRANSISTOR
MINI MOLD

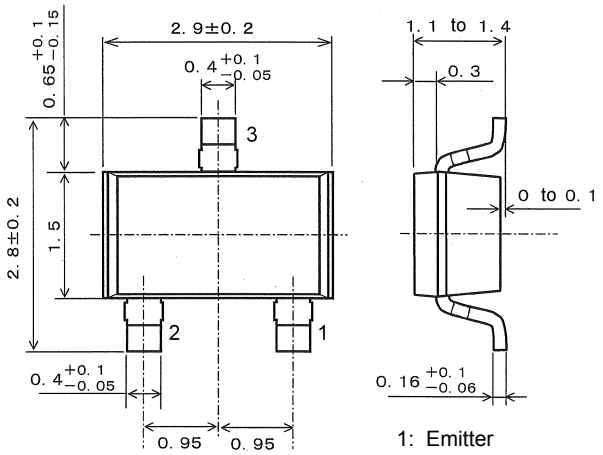
FEATURES

- High DC Current Gain:
  h_{FE} = 200 TYP. (V_{CE} = 6.0 V, I_C = 1.0 mA)
- High Voltage: V_{CEO} = 50 V

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	50	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current (DC)	I_C	100	mA
Total Power Dissipation	P_T	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	–55 to +150	°C

PACKAGE DRAWING (Unit: mm)



1: Emitter
2: Base
3: Collector

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cut-off Current	I_{CBO}			0.1	μA	V_{CB} = 60 V, I_E = 0 A
Emitter Cut-off Current	I_{EBO}			0.1	μA	V_{EB} = 5.0 V, I_C = 0 A
DC Current Gain	h_{FE}	90	200	600		V_{CE} = 6.0 V, I_C = 1.0 mA[Note]
Collector Saturation Voltage	$V_{CE(sat)}$		0.15	0.3	V	I_C = 100 mA, I_B = 10 mA[Note]
Base to Saturation Voltage	$V_{BE(sat)}$		0.86	1.0	V	I_C = 100 mA, I_B = 10 mA[Note]
Base to Emitter voltage	V_{BE}	0.55	0.62	0.65	V	V_{CE} = 6.0 V, I_C = 1.0 mA[Note]
Gain Bandwidth Product	f_T		250		MHz	V_{CE} = 6.0 V, I_E = –10 mA
Output Capacitance	C_{ob}		3.0		pF	V_{CB} = 6.0 V, I_E = 0 A, f = 1.0 MHz

Note Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2%

h_{FE} CLASSIFICATION

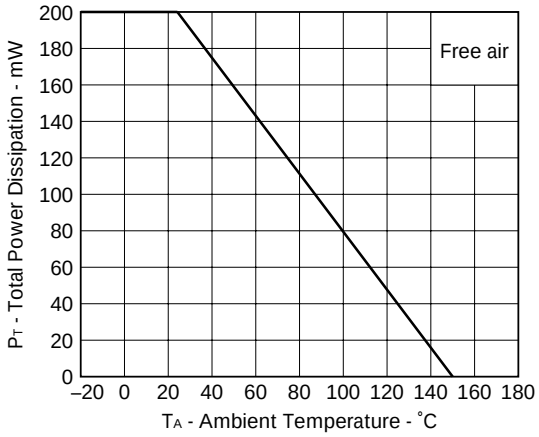
Marking	L4	L5	L6	L7
h_{FE}	90 to 180	135 to 270	200 to 400	300 to 600

Document No. D17841EJ2V0DS00 (2nd edition)
Date Published November 2005 NS CP(K)
Printed in Japan

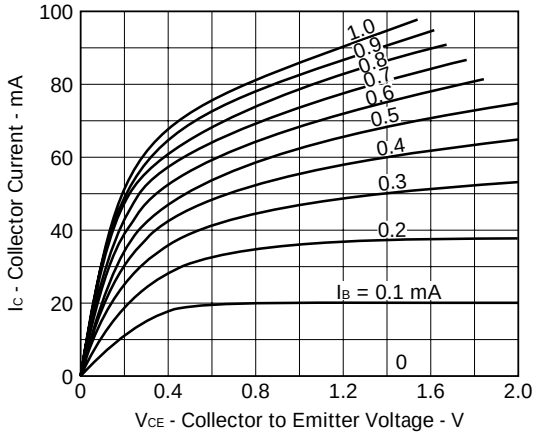
The mark <R> shows major revised points.
The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

<R> TYPICAL CHARACTERISTICS (T_A = 25°C)

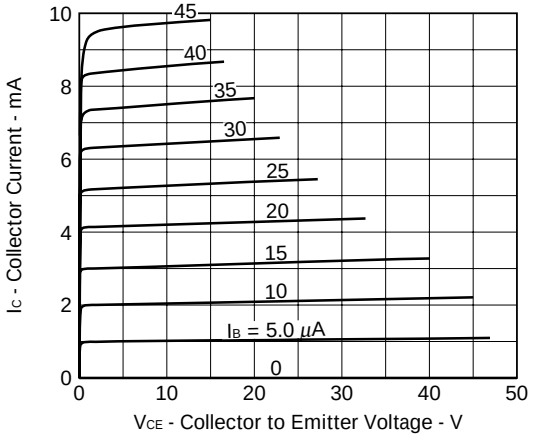
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



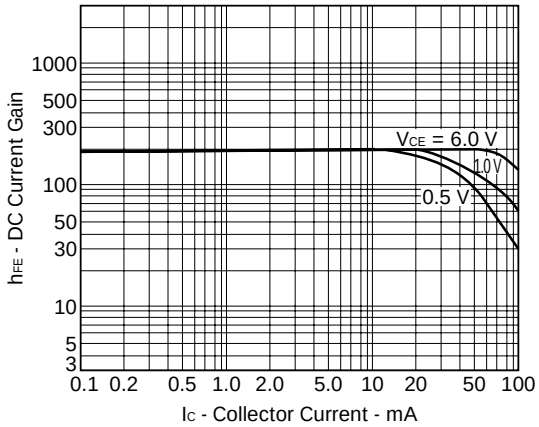
COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



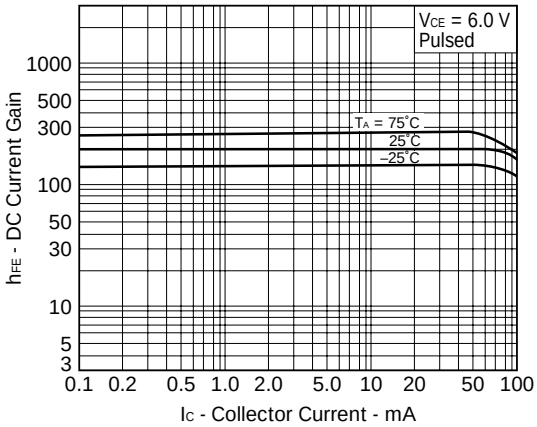
COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



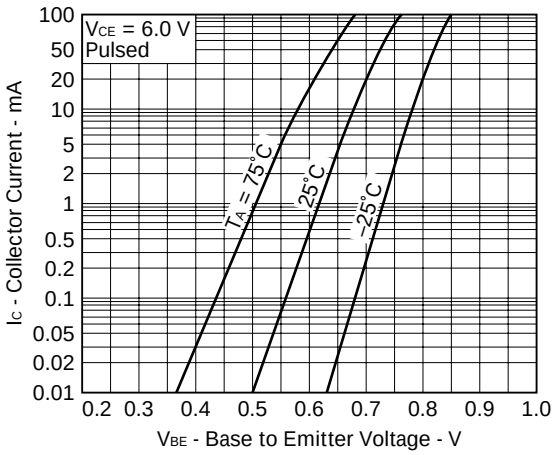
DC CURRENT GAIN vs.
COLLECTOR CURRENT



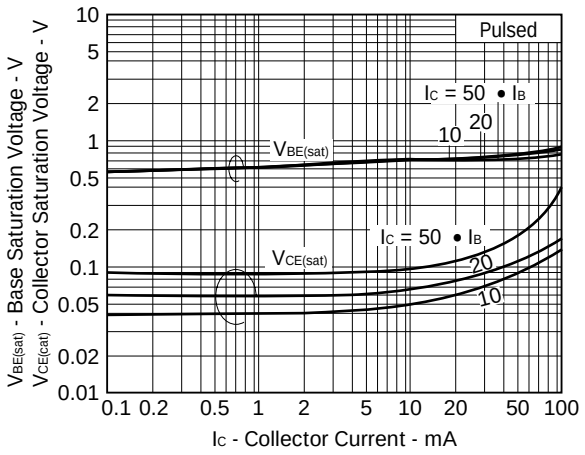
DC CURRENT GAIN vs.
COLLECTOR CURRENT



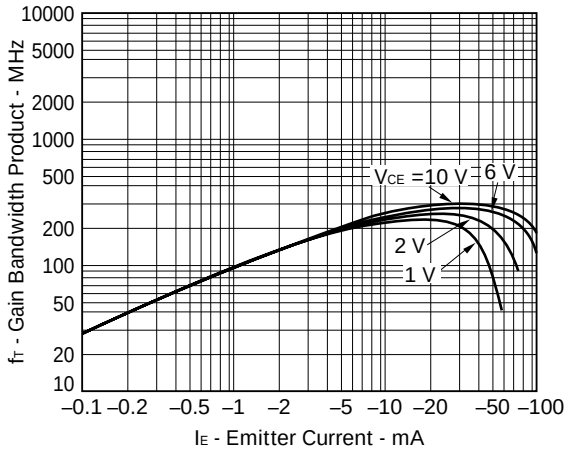
COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE



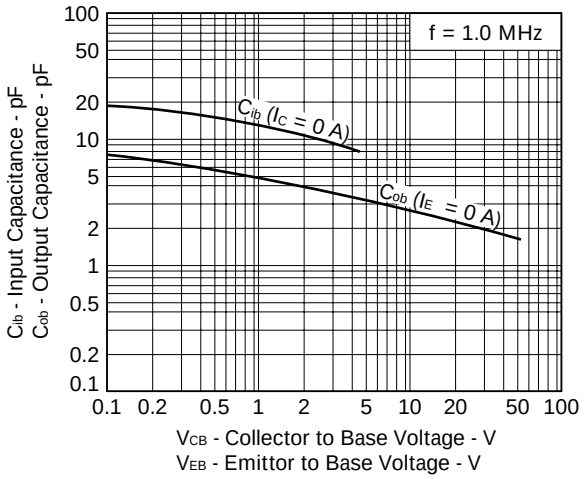
COLLECTOR AND BASE SATURATION
VOLTAGE vs. COLLECTOR CURRENT



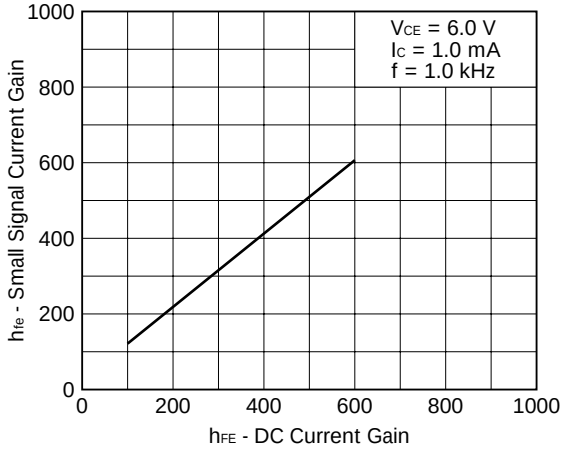
GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



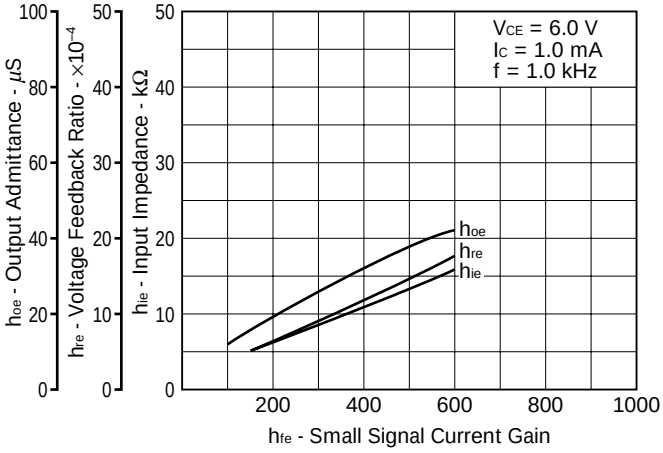
INPUT AND OUTPUT CAPACITANCE
vs. REVERSE VOLTAGE



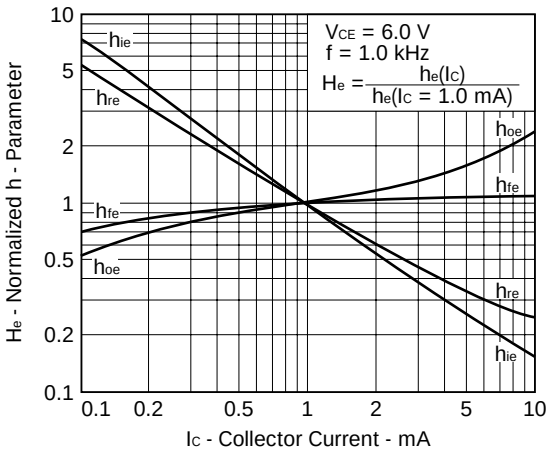
SMALL SIGNAL CURRENT GAIN vs.
DC CURRENT GAIN



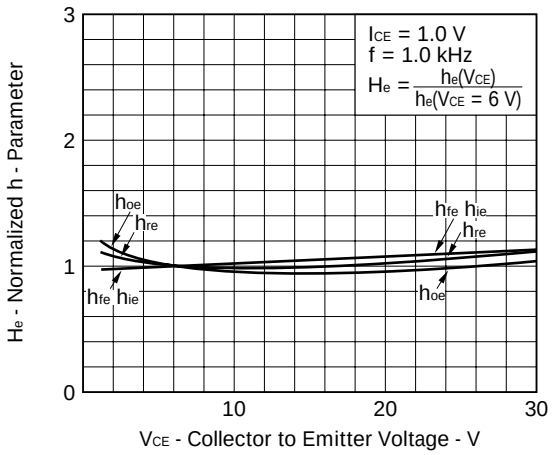
INPUT IMPEDANCE VOLTAGE FEEDBACK
RATIO AND OUTPUT ADMITTANCE vs.
SMALL SIGNAL CURRENT GAIN



NORMALIZED h-PARAMETER vs.
COLLECTOR CURRENT



NORMALIZED h-PARAMETER vs.
COLLECTOR TO EMITTER VOLTAGE



- **The information in this document is current as of November, 2005. The information is subject to change without notice. For actual design-in, refer to the latest publications of NEC Electronics data sheets or data books, etc., for the most up-to-date specifications of NEC Electronics products. Not all products and/or types are available in every country. Please check with an NEC Electronics sales representative for availability and additional information.**
- No part of this document may be copied or reproduced in any form or by any means without the prior written consent of NEC Electronics. NEC Electronics assumes no responsibility for any errors that may appear in this document.
- NEC Electronics does not assume any liability for infringement of patents, copyrights or other intellectual property rights of third parties by or arising from the use of NEC Electronics products listed in this document or any other liability arising from the use of such products. No license, express, implied or otherwise, is granted under any patents, copyrights or other intellectual property rights of NEC Electronics or others.
- Descriptions of circuits, software and other related information in this document are provided for illustrative purposes in semiconductor product operation and application examples. The incorporation of these circuits, software and information in the design of a customer's equipment shall be done under the full responsibility of the customer. NEC Electronics assumes no responsibility for any losses incurred by customers or third parties arising from the use of these circuits, software and information.
- While NEC Electronics endeavors to enhance the quality, reliability and safety of NEC Electronics products, customers agree and acknowledge that the possibility of defects thereof cannot be eliminated entirely. To minimize risks of damage to property or injury (including death) to persons arising from defects in NEC Electronics products, customers must incorporate sufficient safety measures in their design, such as redundancy, fire-containment and anti-failure features.
- NEC Electronics products are classified into the following three quality grades: "Standard", "Special" and "Specific".
  The "Specific" quality grade applies only to NEC Electronics products developed based on a customer-designated "quality assurance program" for a specific application. The recommended applications of an NEC Electronics product depend on its quality grade, as indicated below. Customers must check the quality grade of each NEC Electronics product 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": Aircraft, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems and medical equipment for life support, etc.

The quality grade of NEC Electronics products is "Standard" unless otherwise expressly specified in NEC Electronics data sheets or data books, etc. If customers wish to use NEC Electronics products in applications not intended by NEC Electronics, they must contact an NEC Electronics sales representative in advance to determine NEC Electronics' willingness to support a given application.

(Note)
(1) "NEC Electronics" as used in this statement means NEC Electronics Corporation and also includes its majority-owned subsidiaries.
(2) "NEC Electronics products" means any product developed or manufactured by or for NEC Electronics (as defined above).

M8E 02. 11-1