

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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# NPN SILICON EPITAXIAL TRANSISTOR

## 2SC4783

### NPN SILICON EPITAXIAL TRANSISTOR

#### DESCRIPTION

The 2SC4783 is NPN silicon epitaxial transistor.

#### FEATURES

- High DC current gain:  $h_{FE2} = 200$  TYP.
- High voltage:  $V_{CE0} = 50$  V
- Can be automatically mounted

#### ★ ORDERING INFORMATION

PART NUMBER	PACKAGE
2SC4783	SC-75 (USM)

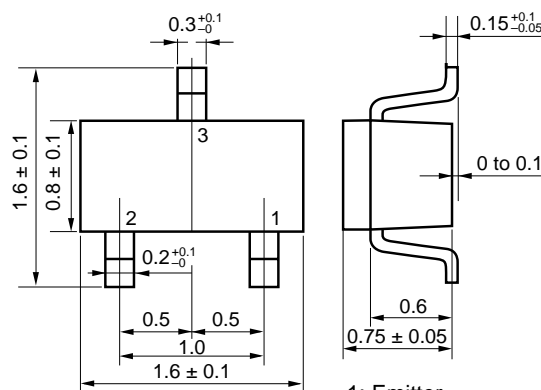
#### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

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)	$I_{C(DC)}$	100	mA
Collector Current (pulse) <sup>Note1</sup>	$I_{C(pulse)}$	200	mA
Total Power Dissipation <sup>Note2</sup>	$P_T$	200	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to + 150	$^\circ\text{C}$

**Notes 1.**  $PW \leq 10$  ms, Duty Cycle  $\leq 50\%$

**2.** When mounted on ceramic substrate of  $3.0\text{ cm}^2 \times 0.64\text{ mm}$

#### ★ PACKAGE DRAWING (Unit: mm)



1: Emitter  
2: Base  
3: Collector

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**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)**

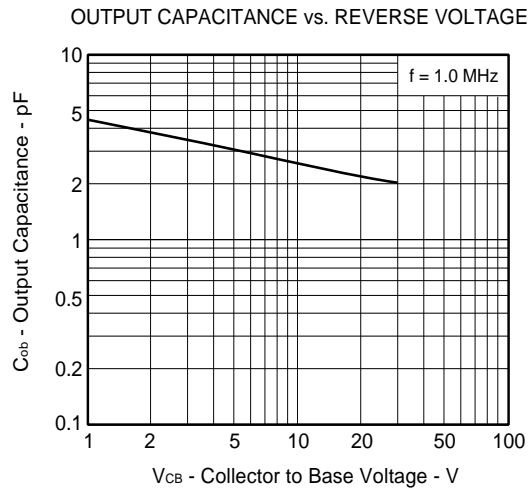
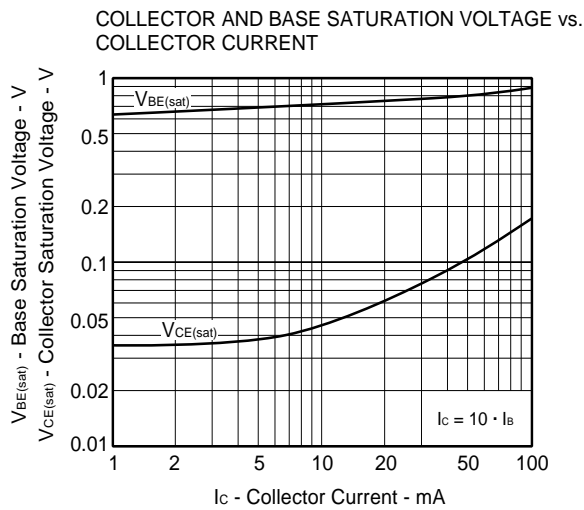
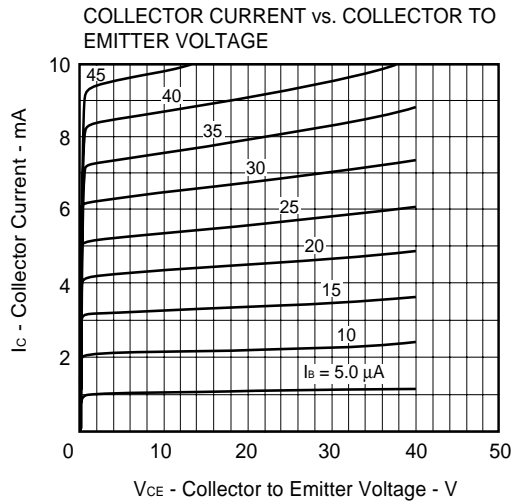
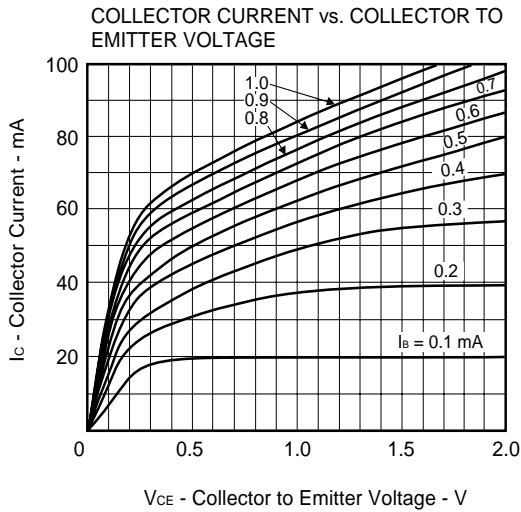
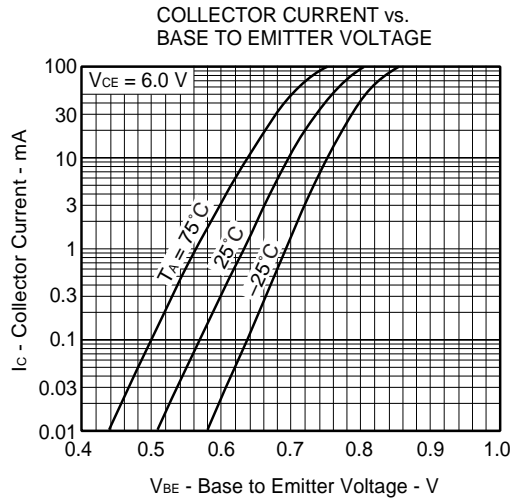
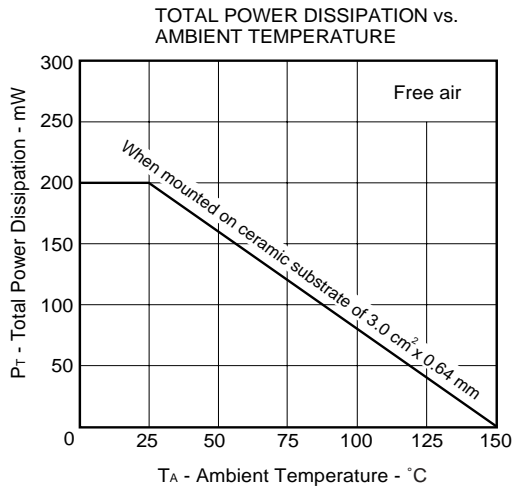
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = 6.0 V, I <sub>E</sub> = 0			100	nA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 5.0 V, I <sub>C</sub> = 0			100	nA
DC Current Gain <sup>Note</sup>	h <sub>FE1</sub>	V <sub>CE</sub> = 6.0 V, I <sub>C</sub> = 0.1 mA	50			–
	h <sub>FE2</sub>	V <sub>CE</sub> = 6.0 V, I <sub>C</sub> = 1.0 mA	90	200	600	–
Base to Emitter Voltage <sup>Note</sup>	V <sub>BE</sub>	V <sub>CE</sub> = 6.0 V, I <sub>C</sub> = 1.0 mA		0.62		V
Collector Saturation Voltage <sup>Note</sup>	V <sub>CE(sat)</sub>	I <sub>C</sub> = 100 mA, I <sub>B</sub> = 10 mA		0.15	0.30	V
Base Saturation Voltage <sup>Note</sup>	V <sub>BE(sat)</sub>	I <sub>C</sub> = 100 mA, I <sub>B</sub> = 10 mA		0.86	1.00	V
Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = 6.0 V, I <sub>E</sub> = –10 mA	150	250		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CE</sub> = 6.0 V, I <sub>E</sub> = 0 mA, f = 1.0 MHz		3.0	4.0	pF

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

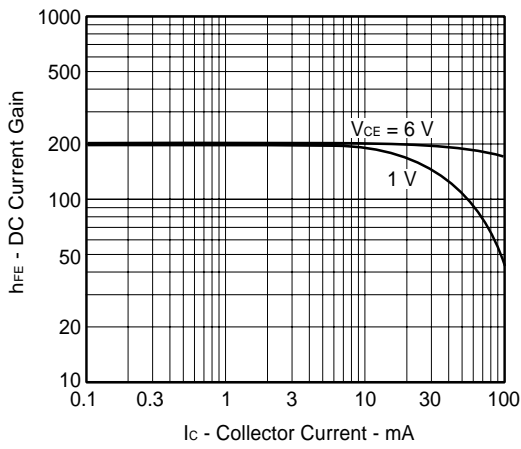
**h<sub>FE</sub> CLASSIFICATION**

Marking	L4	L5	L6	L7
h <sub>FE2</sub>	90 to 180	135 to 270	200 to 400	300 to 600

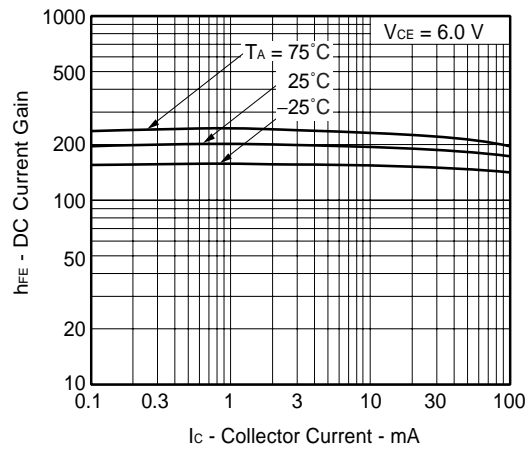
TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)



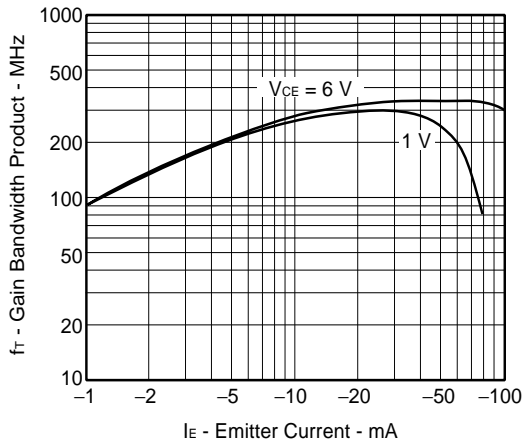
DC CURRENT GAIN vs. COLLECTOR CURRENT



DC CURRENT GAIN vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



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