

# 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:  $V_{CEO} = 50$  V

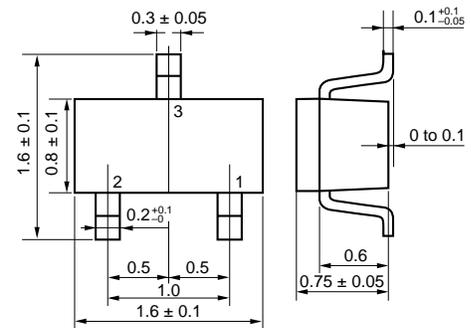
### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

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 ( $T_A = 25^\circ\text{C}$ ) <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

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 60\text{ V}, I_E = 0$			100	nA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 5.0\text{ V}, I_C = 0$			100	nA
DC Current Gain <sup>Note</sup>	$h_{FE1}$	$V_{CE} = 6.0\text{ V}, I_C = 0.1\text{ mA}$	50			—
	$h_{FE2}$	$V_{CE} = 6.0\text{ V}, I_C = 1.0\text{ mA}$	90	200	600	—
Base to Emitter Voltage <sup>Note</sup>	$V_{BE}$	$V_{CE} = 6.0\text{ V}, I_C = 1.0\text{ mA}$		0.62		V
Collector Saturation Voltage <sup>Note</sup>	$V_{CE(sat)}$	$I_C = 100\text{ mA}, I_B = 10\text{ mA}$		0.15	0.3	V
Base Saturation Voltage <sup>Note</sup>	$V_{BE(sat)}$	$I_C = 100\text{ mA}, I_B = 10\text{ mA}$		0.86	1.0	V
Gain Bandwidth Product	$f_T$	$V_{CE} = 6.0\text{ V}, I_E = -10\text{ mA}$	150	250		MHz
Output Capacitance	$C_{ob}$	$V_{CE} = 6.0\text{ V}, I_E = 0, f = 1.0\text{ MHz}$		3.0	4.0	pF

**Note** Pulsed:  $PW \leq 350\ \mu\text{s}$ , Duty Cycle  $\leq 2\%$

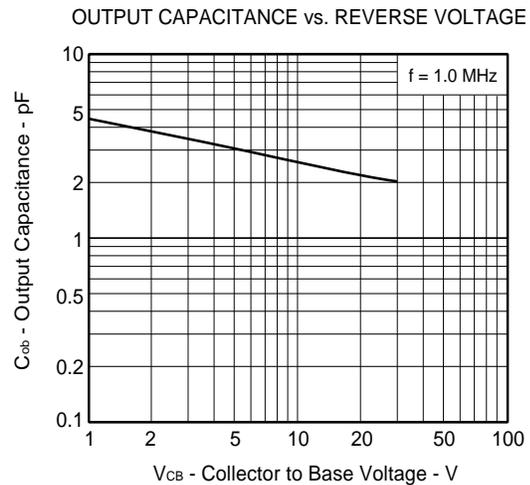
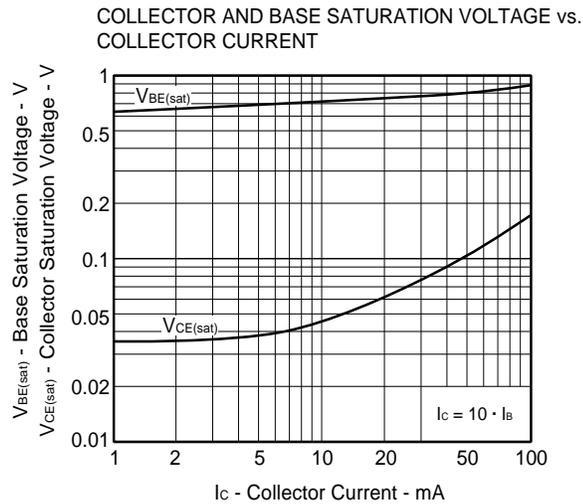
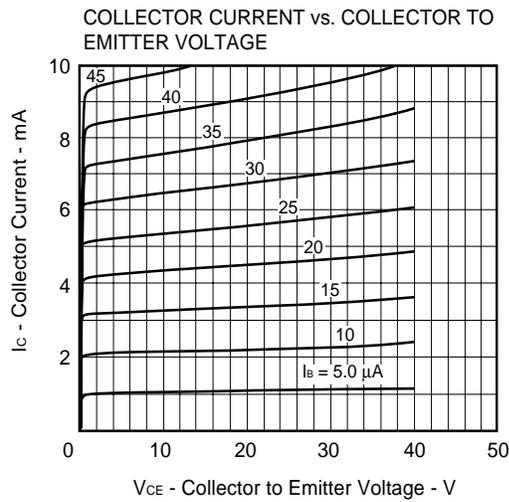
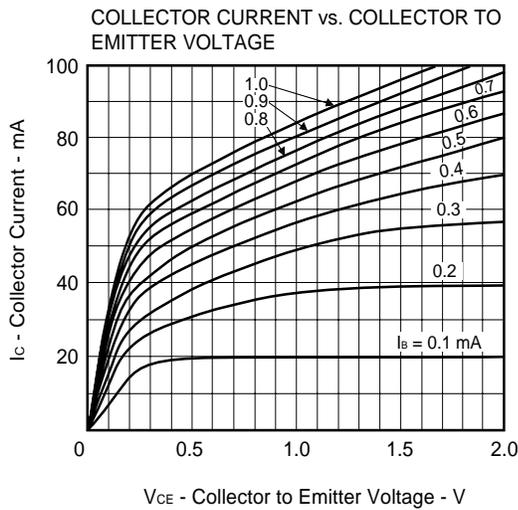
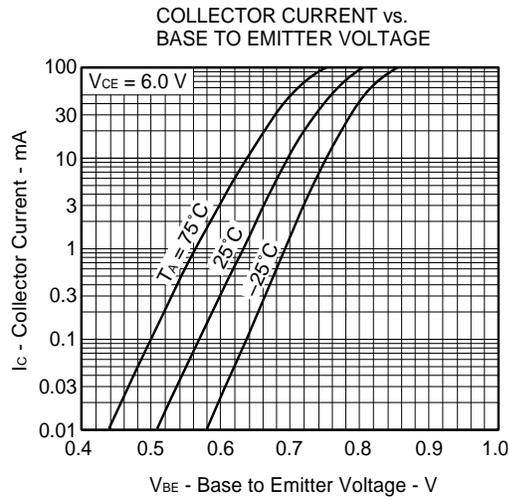
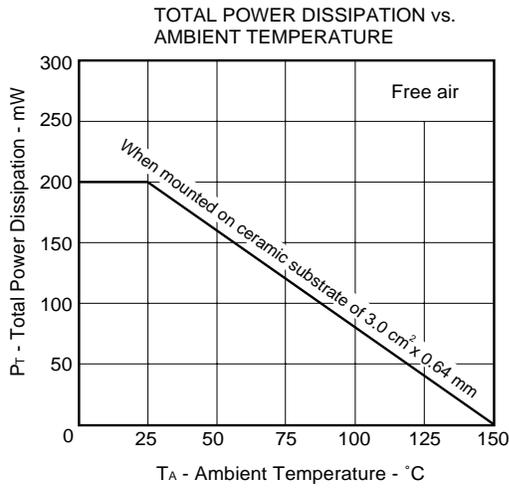
### $h_{FE}$ CLASSIFICATION

Marking	L4	L5	L6	L7
$h_{FE2}$	90 to 180	135 to 270	200 to 400	300 to 600

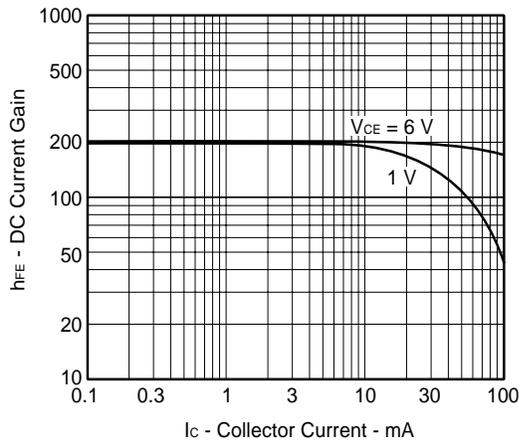
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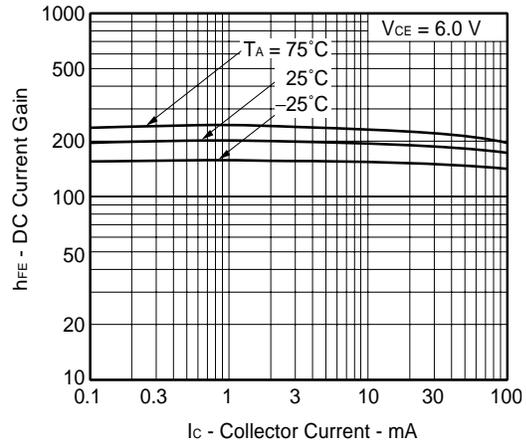
TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)



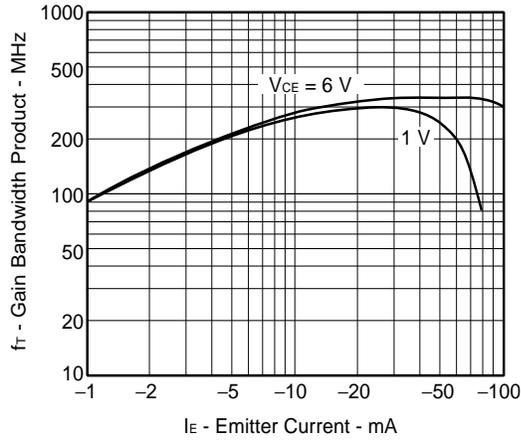
DC CURRENT GAIN vs. COLLECTOR CURRENT



DC CURRENT GAIN vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



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