

**Description**

Silicon NPN transistor in a SOT-523 Plastic Package

**Features**

- Low current
- Low voltage
- Halogen-free product

**Applications**

General purpose amplifier and switching.

Symbol	Parameter	Max	Unit
$V_{CEO}$	collector-emitter voltage	50	V
$I_c$	collector current (DC)	150	mA

**Equivalent Circuit & Pinning**


PIN1: Base

PIN 2: Emitter

PIN 3: Collector

$h_{FE}$ Classifications Symbol	Q	R	S
$h_{FE}$ Range	120~270	180~390	270~560
Marking	H1Q	H1R	H1S

**$h_{FE}$**   
 Classifications &  
 Marking

**Absolute Maximum Ratings(Ta=25°C)**

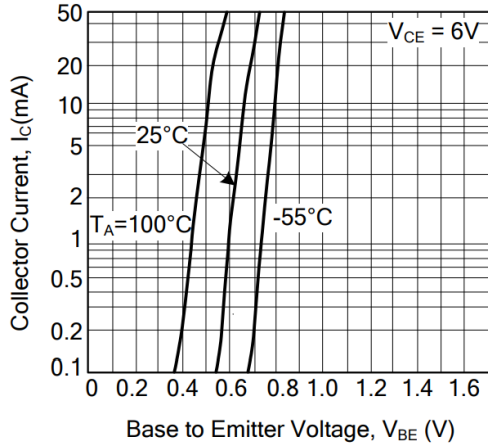
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	60	V
Collector to Emitter Voltage	$V_{CEO}$	50	V
Emitter to Base Voltage	$V_{EBO}$	7	V
Collector Current	$I_C$	150	mA
Collector Power Dissipation	$P_C$	150	mW
Thermal resistance, junction to Ambient	$R_{\theta JA}$	833	°C/W
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C

**Electrical Characteristics(Ta=25°C)**

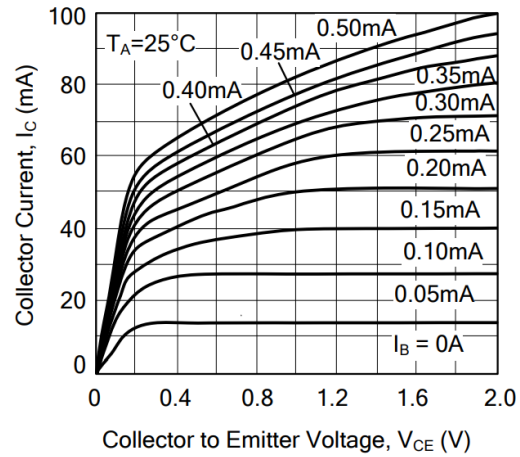
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	$V_{CBO}$	$I_C=50\mu A$ $I_E=0$	60			V
Collector to Emitter Breakdown Voltage	$V_{CEO}$	$I_C=1.0mA$ $I_B=0$	50			V
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=50\mu A$ $I_C=0$	7			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=60V$ $I_E=0$			0.1	$\mu A$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=7.0V$ $I_C=0$			0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=6.0V$ $I_C=1mA$	120		560	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=50mA$ $I_B=5.0mA$			0.4	V
Output Capacitance	$C_{ob}$	$V_{CB}=12V$ $f=1.0MHz$			3.5	pF
Transition Frequency	$f_T$	$V_{CE}=20V$ $I_C=2.0mA$ $f=30MHz$		180		MHz

Electrical Characteristic Curve

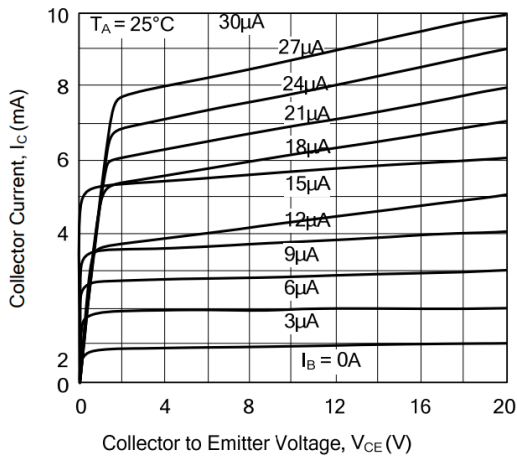
Grounded Emitter Propagation Characteristics



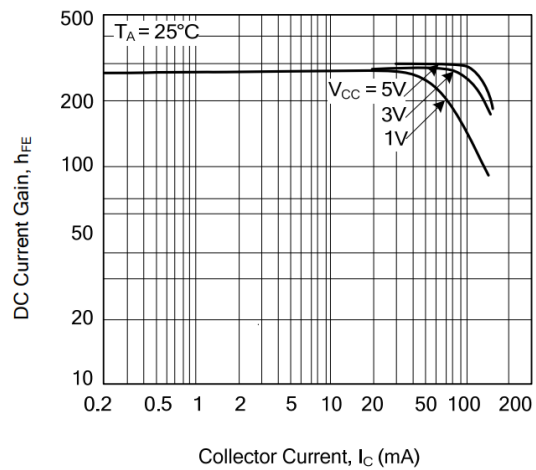
Grounded Emitter Output Characteristics (I)



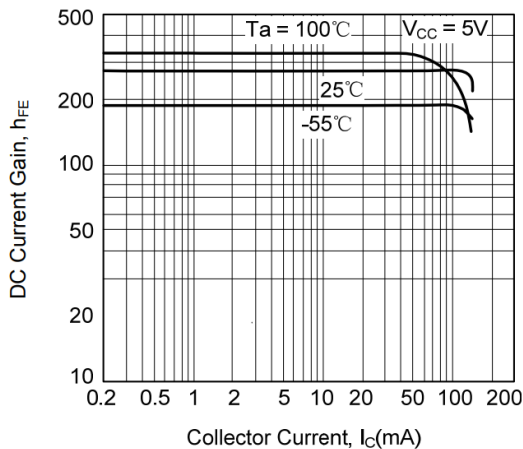
Grounded Emitter Output Characteristics (II)



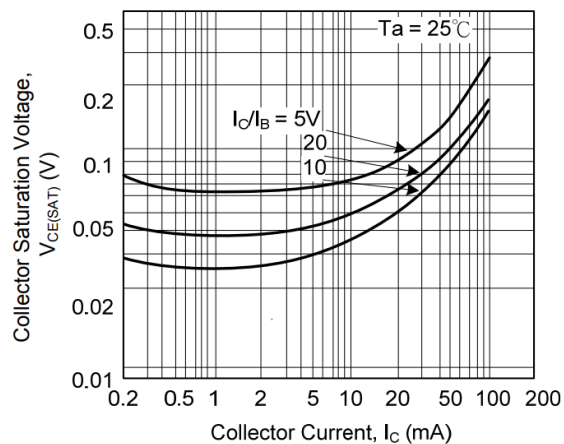
DC Current Gain vs. Collector Current (I)



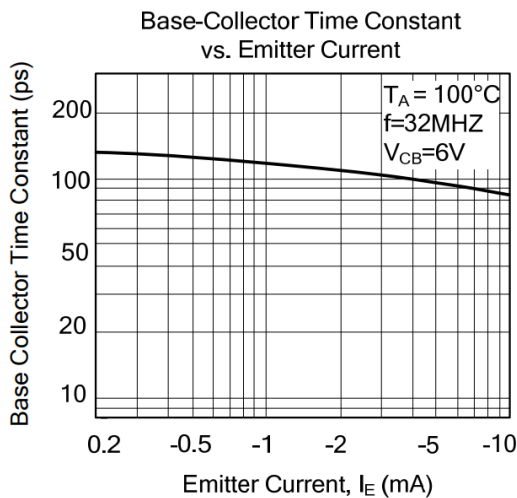
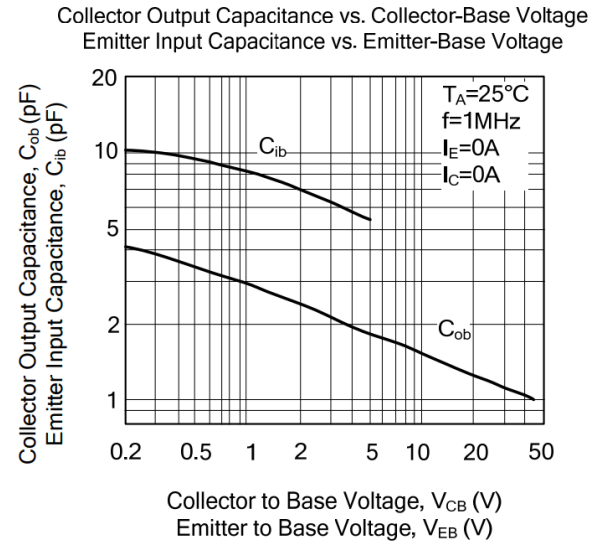
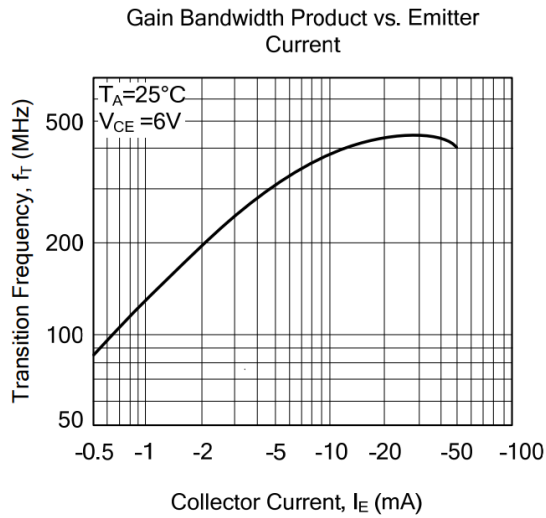
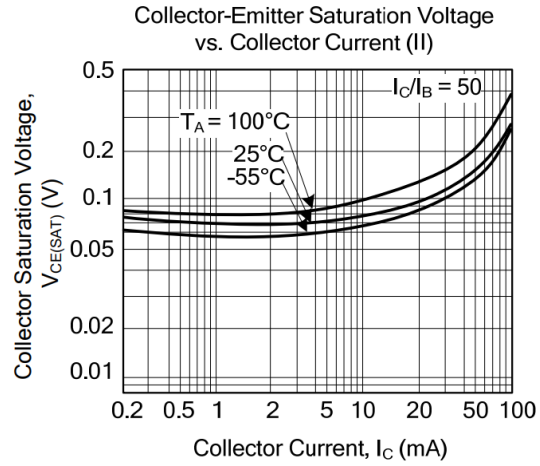
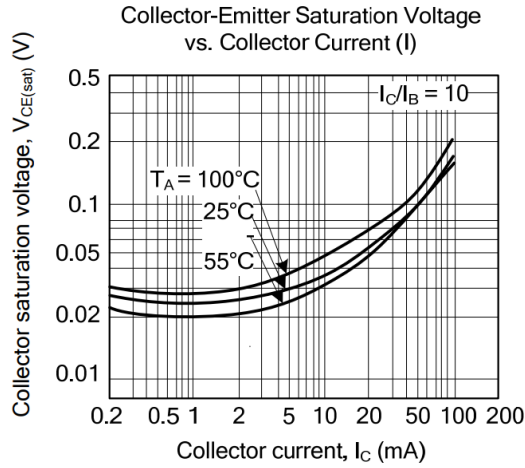
DC Current Gain vs. Collector Current (II)



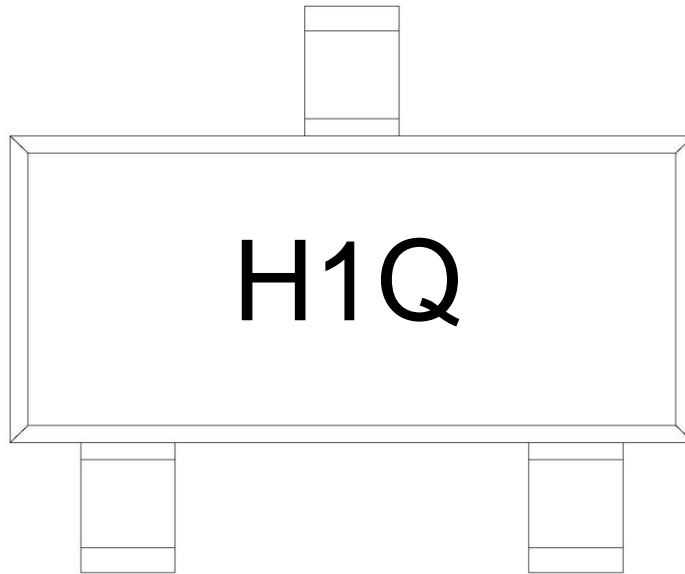
Collector-Emitter Saturation Voltage vs. Collector Current



Electrical Characteristic Curve



Marking Instructions



Note:

- H: Company Code
- 1: Product Type Code
- Q:  $h_{FE}$  Classifications Symbol Code

$h_{FE}$ Classifications Symbol	Q	R	S
$h_{FE}$ Range	120~270	180~390	270~560
Marking	H1Q	H1R	H1S

Packaging SPEC.

REEL INFORMATION

Package Type	Units					Dimension (unit: mm <sup>3</sup> )		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT-523	3,000	10	30,000	6	180,000	7" x8	180x120x180	390x385x205

# SOT-523

单位 ; mm

