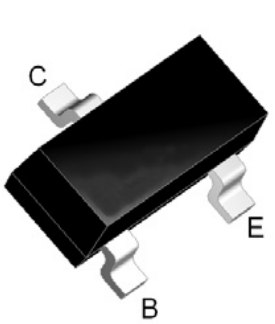
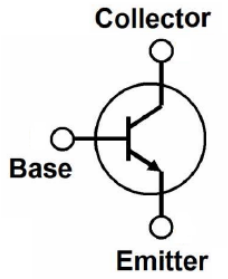
GENERAL PURPOSE TRANSISTORS NPN Silicon





FEATURES

- For General AF Application
- High Collector Current
- High Current Gain
- Low Collector-Emitter Saturation Voltage

MECHANICAL DATA

- Available in SOT-323 Package
- Solderability：MIL-STD-202, Method 208
- Full RoHS Compliance

ORDERING INFORMATION

Part Number	Package	Shipping	Marking Code
2SC4116□-△-3T3R	SOT-323	Tape Reel	See Classification Of h_{FE}

Notes:

1. □: none is for Lead Free package;
   "G" is for Halogen Free package.
2. △: Rank Of h_{FE}; See Classification Of h_{FE}

THERMAL DATA

PARAMETER	SYMBOL	VALUES	UNIT
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	125	°C/W

Notes:

3. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. The value of $R_{\theta JA}$ is measured with device mounted on 1 in^2 FR-4 board with 2 oz copper.

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise specified. (Note 1)

PARAMETER	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V_{CEO}	50	V
Collector-Base Voltage	V_{CBO}	60	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current (Continuous)	I_C	150	mA
Collector dissipation	P_C	100	mW
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{stg}	- 55 ~ +150	°C

Note:
1. These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise noted.

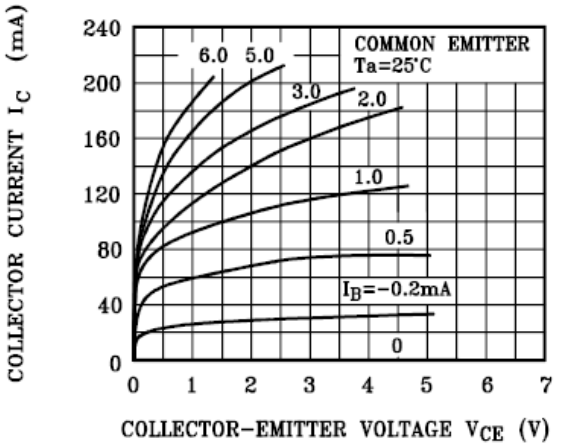
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, I_B = 0	50			V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 100μA, I_E = 0	60			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100μA, I_C = 0	5			V
Emitter Cut-off Current	I_{EBO}	V_{EB} = 5V, I_C = 0			0.1	μA
Collector Cut-off Current	I_{CBO}	V_{CB} = 60V, I_E = 0			0.1	μA
ON CHARACTERISTICS						
Dc Current Gain	h_{FE}	V_{CE} = 6V, I_C = 2mA	70		700	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 100mA, I_B = 10 mA			0.25	V
SMALL−SIGNAL CHARACTERISTICS						
Collector Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz			3.5	pF
Transition Frequency	f_T	V_{CE} = 10V, I_C = 1mA	80			MHz
Noise Figure	NF	V_{CE} = 6V, I_C = 0.1mA, f=1KHz, R_g=10KΩ			10	dB

CLASSIFICATION OF $h_{FE(1)}$

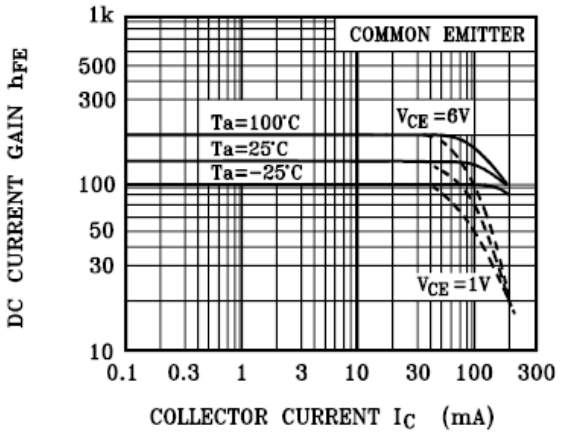
RANK	O	Y	GR	BL
h_{FE} RANGE	70~140	120~240	200~400	350~700
MARKING	LO	LY	LG	LL

ELECTRICAL CHARACTERISTICS CURVES

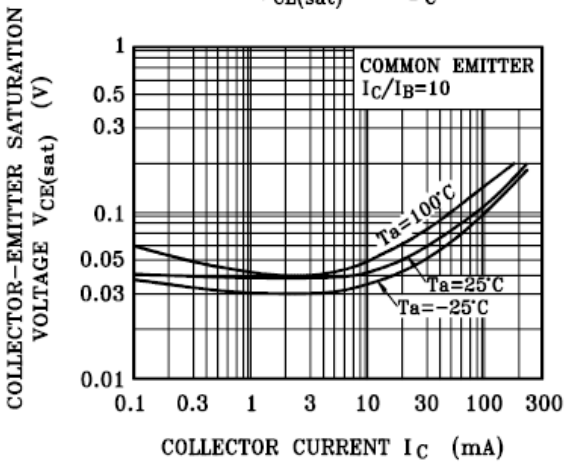
I_C – V_{CE}



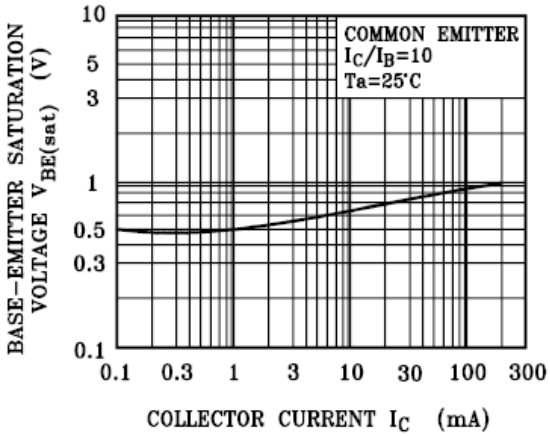
h_{FE} – I_C



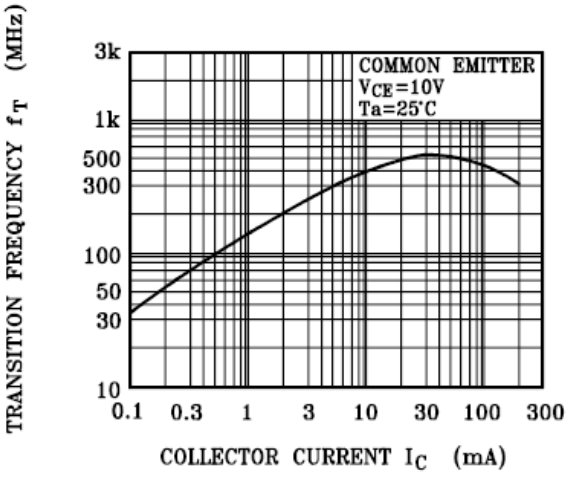
$V_{CE(sat)}$ – I_C



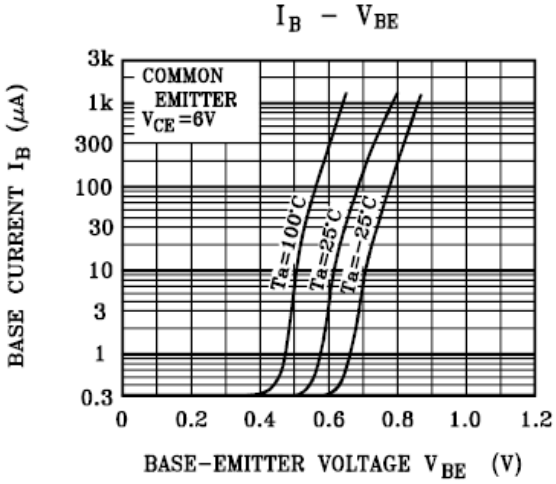
$V_{BE(sat)}$ – I_C



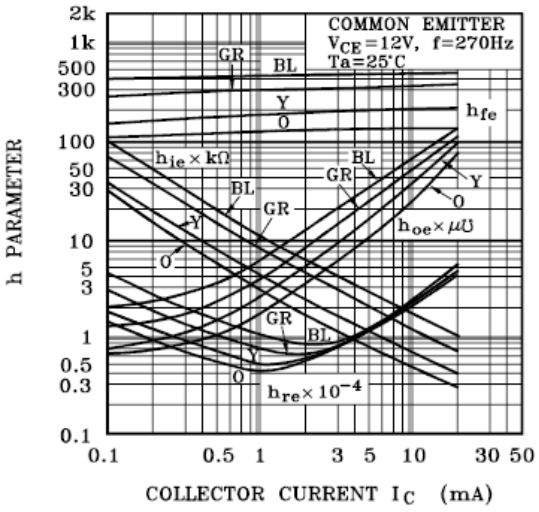
f_T – I_C



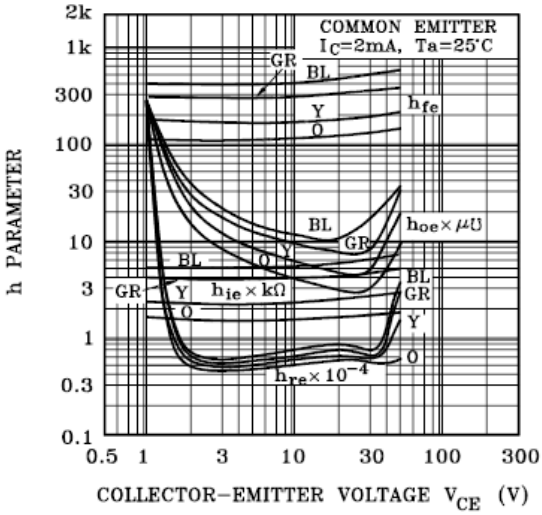
I_B – V_{BE}



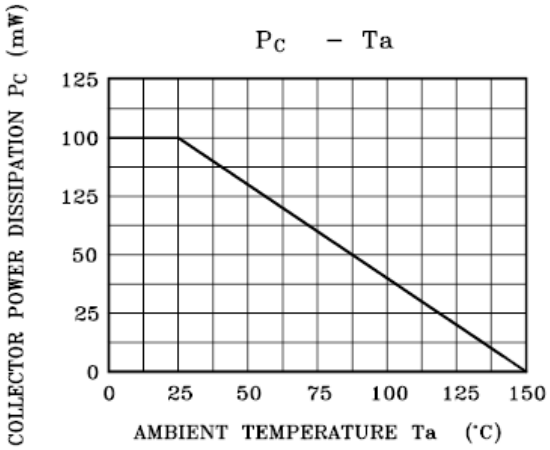
h PARAMETER – I_C



h PARAMETER – V_{CE}



P_C – Ta



PHYSICAL DIMENSION

Unit：Inch (Millimeter)

SOT-323