

Small Signal NPN Bipolar Transistor

FEATURES

- Epitaxial planar die construction
- Surface Mount Device Type
- Moisture sensitivity level 3
- Excellent h_{FE} linearity

APPLICATIONS

- General purpose small signal amplifier
- Fast switching circuit
- LED driver circuit

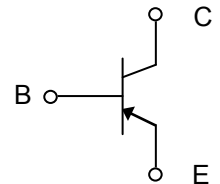
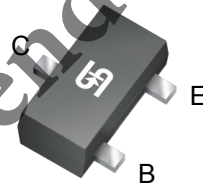
MECHANICAL DATA

- Case: SOT-723
- Terminal: Matte tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- High temperature soldering guaranteed:
260°C/10s

KEY PERFORMANCE PARAMETERS		
PARAMETERS	VALUE	UNIT
V_{CEO}	50	V
I_C	150	mA



SOT-723



B : Base C : Collector E : Emitter

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$ unless otherwise noted)

PARAMETERS	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current-Continuous	I_C	150	mA
Collector Dissipation	P_C	100	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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ELECTRICAL SPECIFICATIONS ($T_a = 25^\circ\text{C}$ unless otherwise noted)

PARAMETERS		SYMBOL	MIN	TYP.	MAX	UNIT
Collector-Base Breakdown Voltage	$I_C = -50\mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	60			V
Collector-Emitter Breakdown Voltage	$I_C = -1\text{mA}, I_B = 0$	$V_{(BR)CEO}$	50			V
Emitter-Base Breakdown Voltage	$I_E = -50\mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	7			V
Collector Cut-Off Current	$V_{CB} = -60\text{V}, I_E = 0$	I_{CBO}			0.1	μA
Emitter Cut-Off Current	$V_{EB} = -6\text{V}, I_C = 0$	I_{EBO}			0.1	μA
DC Current Transfer Ration	$V_{CB} = -6\text{V}, I_C = 1\text{mA}$	h_{FE}	120		560	
Collector-Emitter Saturation Voltage	$I_C = -50\text{mA}, I_B = -5\text{mA}$	$V_{CE(sat)}$			0.4	V
Transition Frequency	$V_{CE} = -12\text{V}, I_C = 2\text{mA}, f = 30\text{MHz}$	f_T		180		MHz
Output Capacitance	$V_{CB} = -12\text{V}, I_E = 0\text{mA}, f = 1\text{MHz}$	C_{ob}			3.5	pF

REMARKS

h_{FE} values are classified as follows

Rank	Q	R	S
Range	120~270	180~390	270~560

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RATINGS AND CHARACTERISTICS CURVES ($T_a = 25^\circ\text{C}$ unless otherwise noted)

FIG.1 Static Characteristic

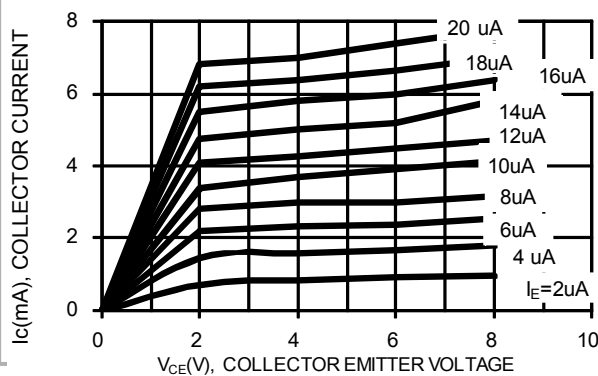


FIG.2 $H_{FE} - I_C$

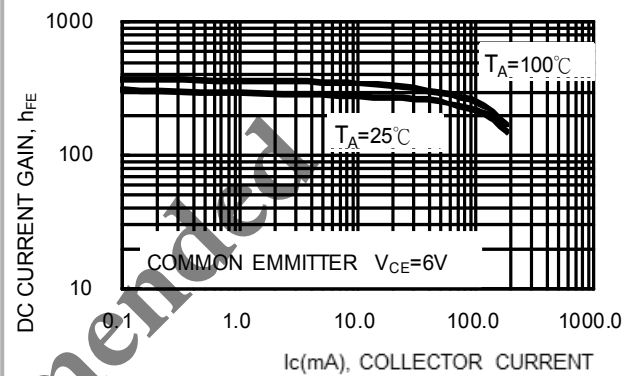


FIG.3 $V_{BE(sat)} - I_C$

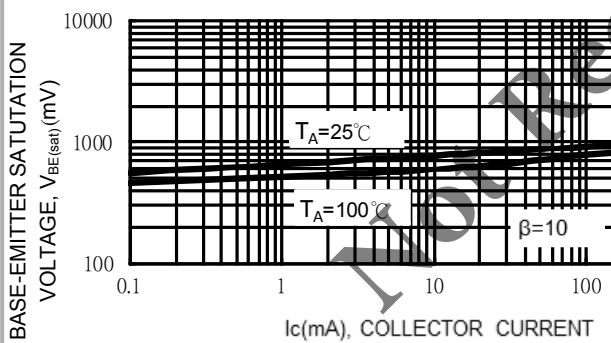


FIG.4 $V_{CE(sat)} - I_C$

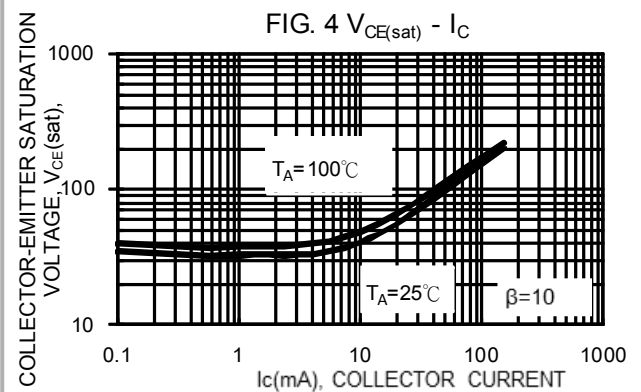


FIG.5 $I_C - V_{BE}$

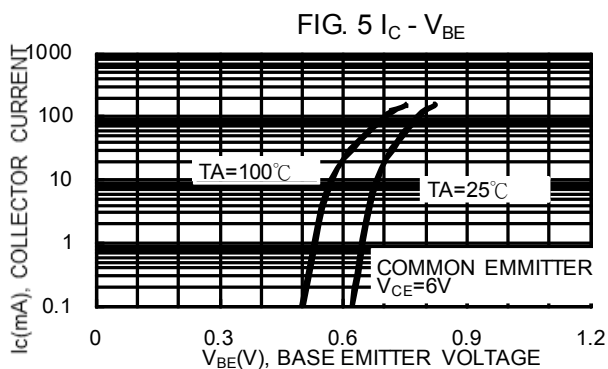
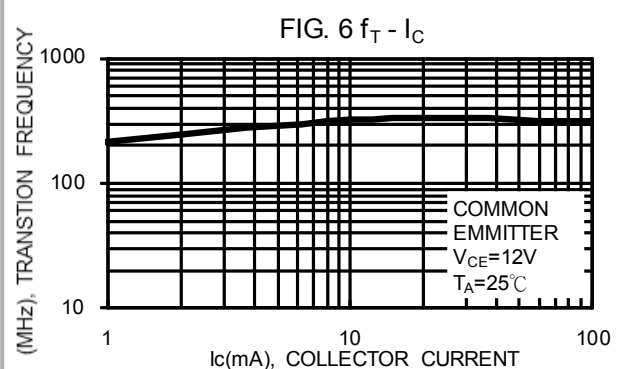


FIG.6 $f_T - I_C$

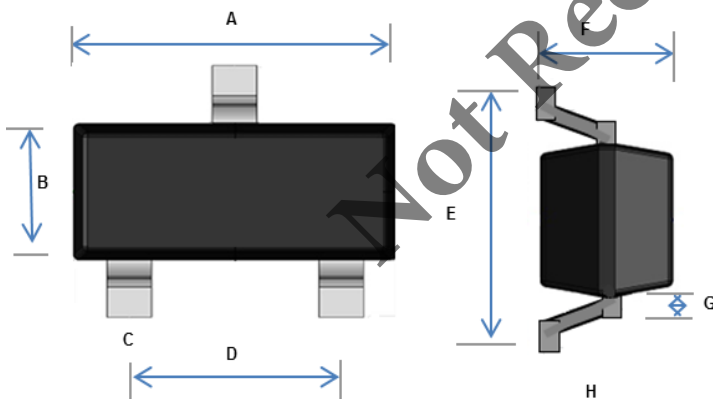


Small Signal PNP Bipolar Transistor

ORDERING INFORMATION

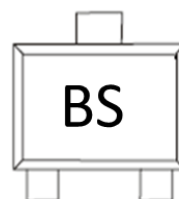
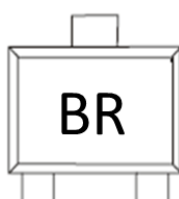
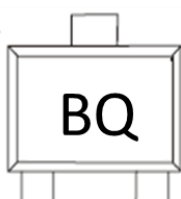
Ordering Information					
PART No.	PACKAGE	PACKING	PACKING CODE	GREEN CODE SUFFIX	MARKING
2SC5658-Q	SOT-723	8K / 7" Reel	RD	G	BQ
2SC5658-R					BR
2SC5658-S					BS

PACKAGE OUTLINE DIMENSION



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.15	1.25	0.045	0.049
B	0.75	0.85	0.030	0.033
C	0.17	0.27	0.007	0.011
D	0.8 TYP.		0.031 TYP.	
E	1.15	1.25	0.045	0.049
F	-	0.50	-	0.020
G	-	0.20	-	0.01
H	-	0.15	-	0.006

MARKING DIAGRAM



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