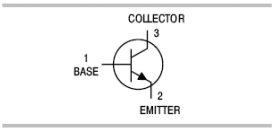
NPN Small Signal Surface Mount Transistor

S9014

Features

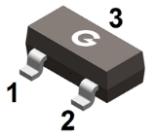
HF

- Complementary to S9015
- Excellent h_{FE} linearity



Mechanical Data

- Case: SOT-23
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-23

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
S9014	SOT-23	3000 pcs / Tape & Reel	J6

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (Continuous)	I_C	100	mA
Collector Current (Peak)	I_{CM}	200	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	200	mW
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	250	°C/W
Thermal Resistance Junction-to-Case *1	$R_{\theta JC}$	150	°C/W
Thermal Resistance Junction-to-Lead *1	$R_{\theta JL}$	180	°C/W
Operating Junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Note 1: The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 100μA, I_E = 0	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 0.1mA, I_B = 0	45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100μA, I_C = 0	5	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 50V, I_E = 0	-	-	0.1	μA
Collector Cut-off Current	I_{CEO}	V_{CE} = 35V, I_B = 0	-	-	0.1	μA
Emitter-base Cut-off Current	I_{EBO}	V_{EB} = 3V, I_C = 0	-	-	0.1	μA
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 1mA	200	-	1000	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 100mA, I_B = 5mA	-	-	0.3	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 100mA, I_B = 5mA	-	-	1.0	V
Base Emitter Voltage	$V_{BE(ON)}$	V_{CE} = 5V, I_C = 2mA	-	-	0.70	V
Transition Frequency	f_T	V_{CE} = 6V, I_C = 20mA f = 30MHz	-	150	-	MHz
Collector Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0 f = 1MHz	-	-	3.5	pF

Classification of h_{FE}

Rank	L	H
Range	200-450	450-1000

Ratings and Characteristic Curves (@ T_A = 25°C unless otherwise specified)

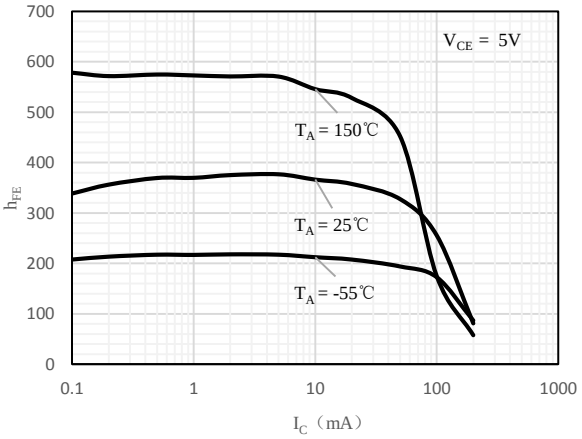


Fig 1 h_{FE} vs. I_C

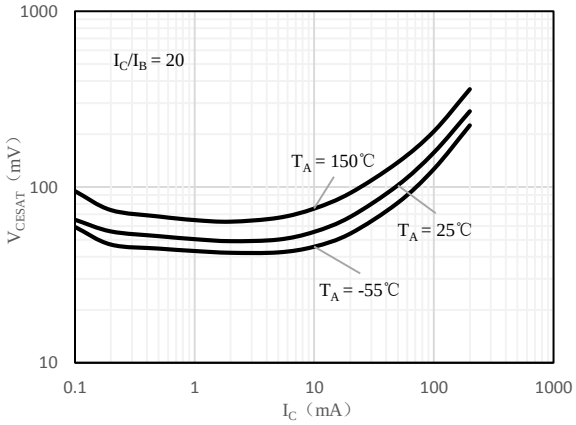


Fig 2 $V_{CE(sat)}$ vs. I_C

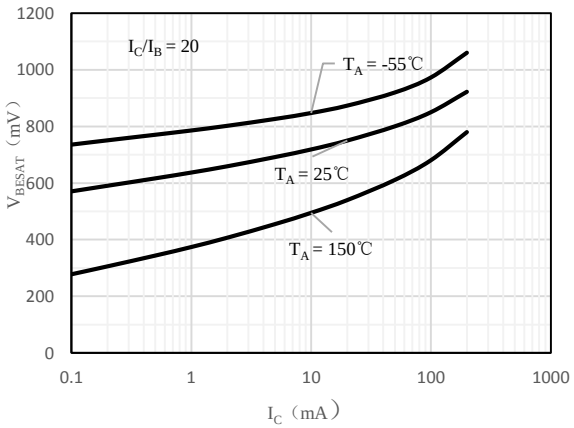


Fig 3 $V_{BE(sat)}$ vs. I_C

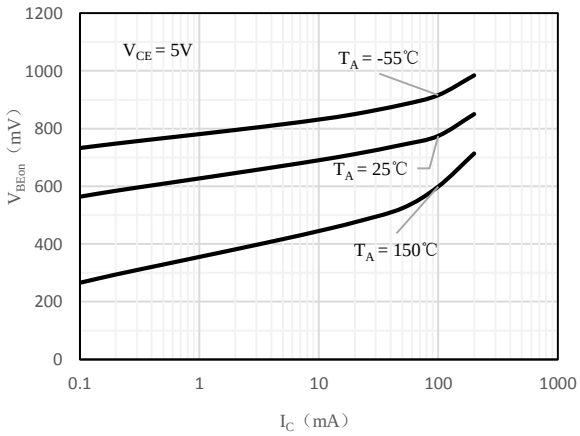
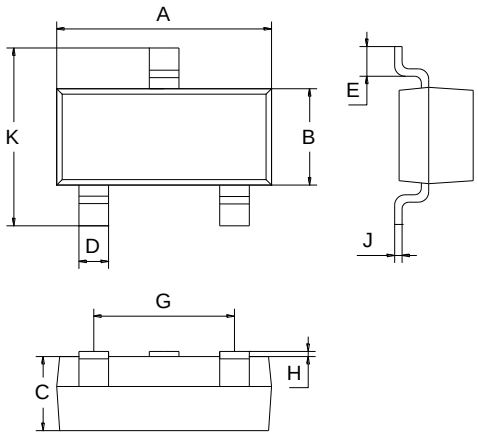


Fig 4 $V_{BE(ON)}$ vs. I_C

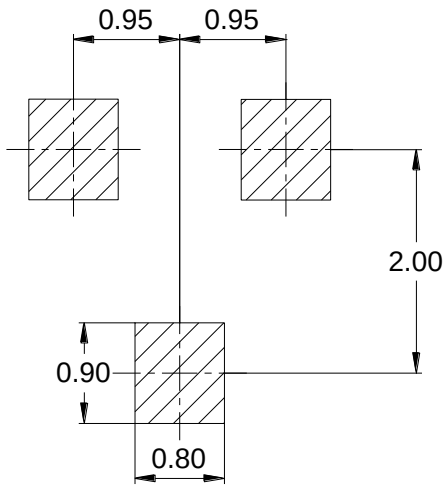
Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	**Min.**	**Max.**
A	2.70	3.10
B	1.10	1.50
C	0.9	1.1
D	0.3	0.5
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.05	0.15
K	2.20	2.60

Package Outline Dimensions (Unit: mm)

SOT-23



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