

C1815

Plastic-Encapsulate Transistor(NPN)

ROHS

Feature

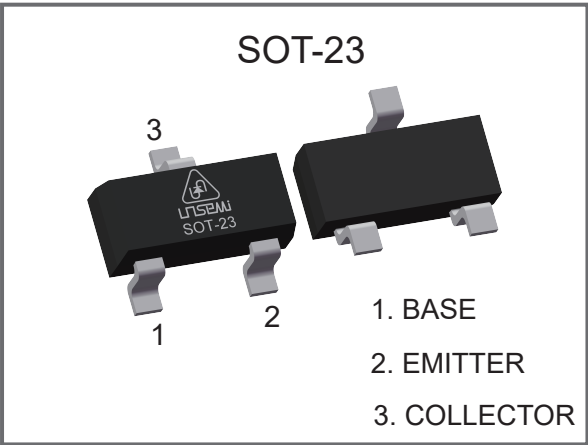
- ◆ Power Dissipation



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Mechanical Data

- ◆ JEDEC SOT-23 Package
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Marking : HF



Maximum Ratings (Ta=25°C Unless Otherwise Noted)

Parameter	Symbol	Value	Units
Collector-Base Voltage	V _{CB0}	60	V
Collector-Emitter Voltage	V _{CE0}	50	V
Emitter-Base Voltage	V _{EB0}	5.0	V
Collector Current	I _C	0.15	A
Collector Power Dissipation	P _C	0.2	W
Thermal Resistance From Junction To Ambient	R _{θJA}	625	°C/W
Junction Temperature Range	T _J	-55~+150	°C
Storage Temperature Range	T _{stg}	-55~+150	°C

Electrical Characteristics($T_{amb}=25^{\circ}C$ Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Units
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu A, I_E = 0$	60		V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 0.1mA, I_B = 0$	50		V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu A, I_C = 0$	5		V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = 60V, I_E = 0$		0.1	μA
Collector Cut-Off Current	I_{CEO}	$V_{CE} = 50V, I_B = 0$		0.1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$		0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = 6V, I_C = 2mA$	130	400	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100mA, I_B = 10mA$		0.25	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 100mA, I_B = 10mA$		1.0	V
Transition Frequency	f_T	$V_{CE} = 10V, I_C = 1mA, f = 30MHz$	80		MHz

Classification of h_{FE}

Rank	L	H
Range	130-200	200-400

Electrical Characteristics Curves

Fig. 1 Static Characteristic

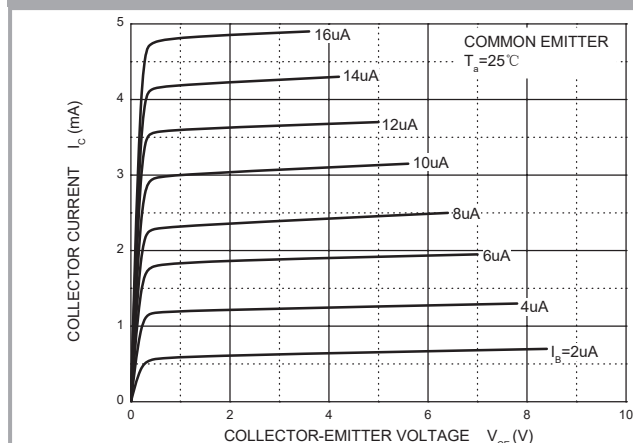
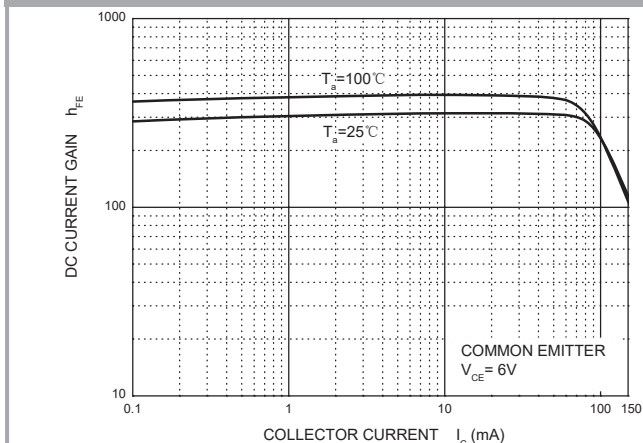


Fig. 2 $h_{FE} - I_C$



Electrical Characteristics Curves

Fig. 3 $V_{CE(sat)} - I_C$

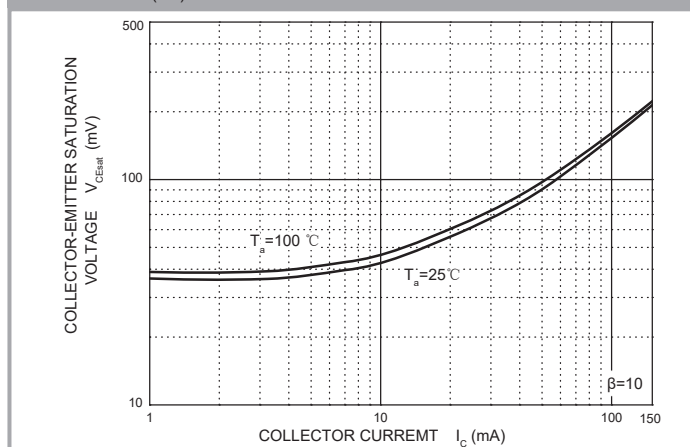


Fig. 4 $V_{BE(sat)} - I_C$

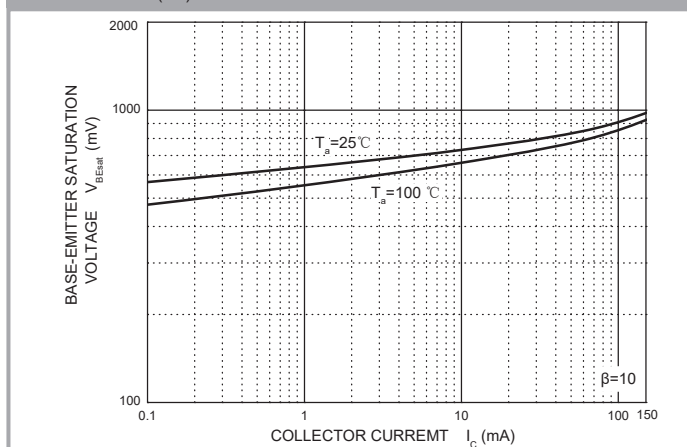


Fig. 5 $I_C - V_{BE}$

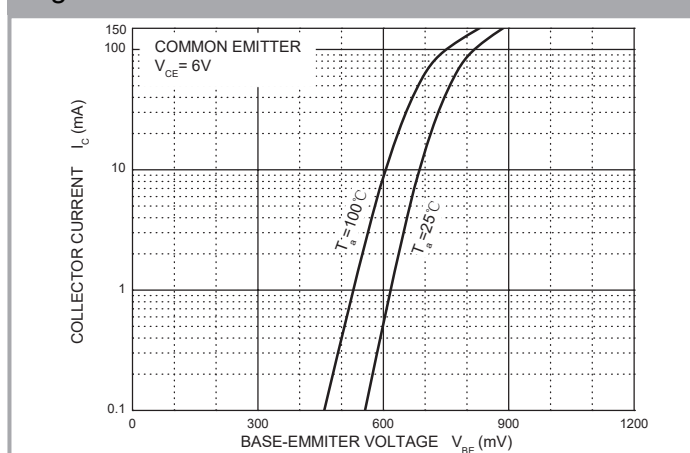


Fig. 6 $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

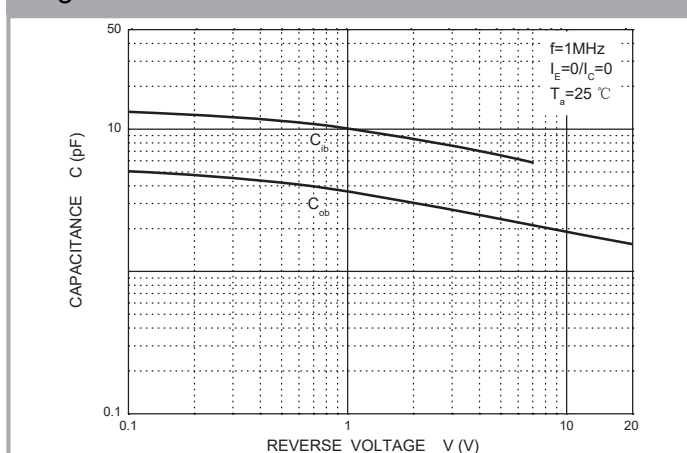


Fig. 7 $f_T - I_C$

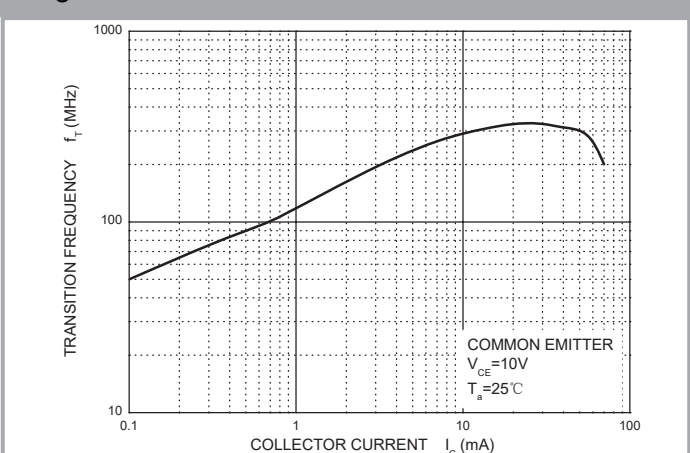
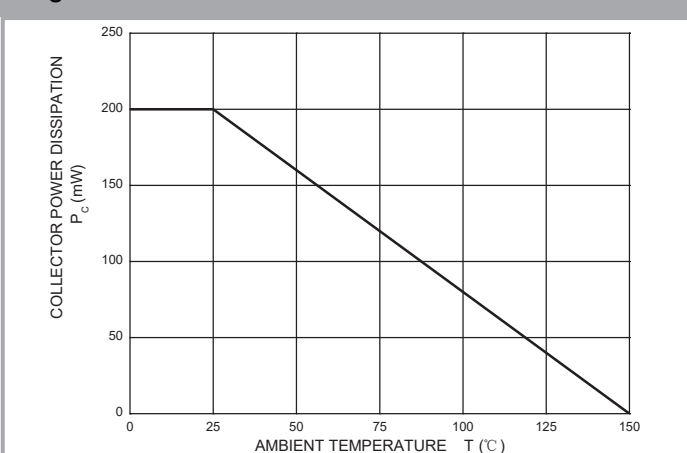
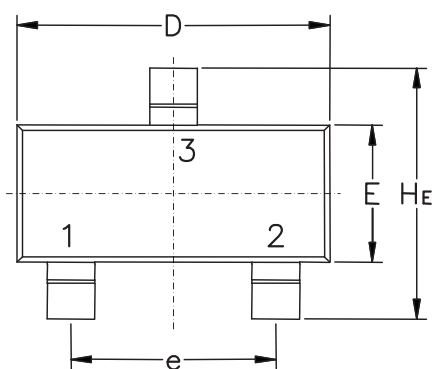


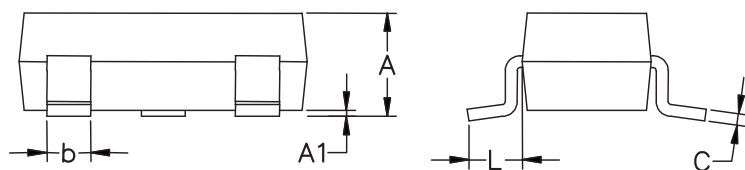
Fig. 8 $P_c - T_a$



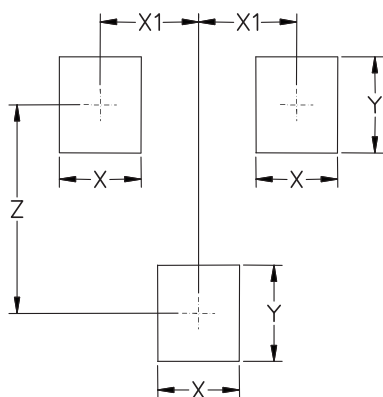
SOT-23 Package Outline & Dimensions (Units: mm / in)



Symbol	Millimeters			Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	1.05	1.11	1.25	0.042	0.044	0.050
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.30	0.44	0.50	0.012	0.018	0.020
C	0.09	0.13	0.20	0.003	0.005	0.008
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.50	1.60	1.70	0.059	0.051	0.067
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.35	0.54	0.69	0.014	0.021	0.027
HE	2.65	2.80	2.95	0.104	0.112	0.116



Soldering Footprint



Symbol	Millimeters	Inches
X	0.80	0.031
X1	0.96	0.037
Y	0.90	0.035
Z	2.40	0.096

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