

Small Signal Transistor
**60V NPN
SOT23**
Features

- Power Dissipation of 300mW
- High Stability and High Reliability
- Moisture Sensitivity Level 1

Mechanical Data

- Case: SOT23 Package
- Case Material: "Green" Molding Compound UL Flammability Classification Rating 94V-0
- Halogen Free

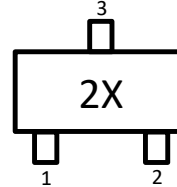
Note: Products with logo  or  are made by HY Electronic (Cayman) Limited.

Ordering Information

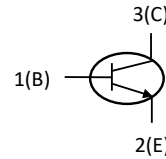
- Package :SOT23
- Reel Size :7 (inches)
- Quantity Per Reel :3,000 pcs
- Quantity One Box :45,000 pcs
- Quantity One Carton :180,000 pcs

Package Outline


SOT23 Top View

Marking Information


"2X" = Product Type Marking Code

Device Schematic & PIN Configuration


Pin Assignment	
1	Base
2	Emitter
3	Collector

Maximum Ratings (@TA = +25°C, unless otherwise specified.)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	
Emitter-Base Voltage	V_{EBO}	6	
Collector Current-Continuous	I_C	600	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Electrical Characteristics (@TA = +25°C, unless otherwise specified.)

Parameter	Test Conditions	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage	$I_C=100\mu A, I_E=0$	$V_{(BR)CBO}$	60	-	V
Collector-Emitter Breakdown Voltage	$I_C=1mA, I_B=0$	$V_{(BR)CEO}$	40	-	
Emitter-Base Breakdown Voltage	$I_E=100\mu A, I_C=0$	$V_{(BR)EBO}$	6	-	
Collector Cut-Off Current	$V_{CB}=50V, I_E=0$	I_{CBO}	-	100	nA
Collector Cut-Off Current	$V_{CE}=35V, V_{EB(off)}=0.4V$	I_{CEX}	-	100	
Emitter Cut-Off Current	$V_{EB}=5V, I_C=0$	I_{EBO}	-	100	
DC Current Gain	$V_{CE}=1V, I_C=0.1mA$	$h_{FE(1)}$	20	-	-
	$V_{CE}=1V, I_C=1mA$	$h_{FE(2)}$	40	-	
	$V_{CE}=1V, I_C=10mA$	$h_{FE(3)}$	80	-	
	$V_{CE}=1V, I_C=150mA$	$h_{FE(4)}$	100	300	
	$V_{CE}=1V, I_C=500mA$	$h_{FE(5)}$	40	-	
Collector-Emitter Saturation Voltage	$I_C=150mA, I_B=15mA$	$V_{CE(sat)1}$	-	0.40	V
	$I_C=500mA, I_B=50mA$	$V_{CE(sat)2}$	-	0.75	
Base-Emitter Saturation Voltage	$I_C=150mA, I_B=15mA$	$V_{BE(sat)1}$	-	0.95	V
	$I_C=500mA, I_B=50mA$	$V_{BE(sat)2}$	-	1.20	
Transition Frequency	$V_{CE}=10V, I_C=20mA, F=100MHz$	f_T	250	-	MHz
Delay Time	$V_{CC}=30V, V_{BE(off)}=-2V, I_C=150mA, I_{B1}=15mA$	t_d	-	15	ns
Rise Time		t_r	-	20	ns
Storage Time		t_s	-	225	ns
Fall Time	$I_{B1}=I_{B2}=15mA$	t_f	-	60	ns



Rating and Characteristic Curves

FIG.1 - Static Characteristic

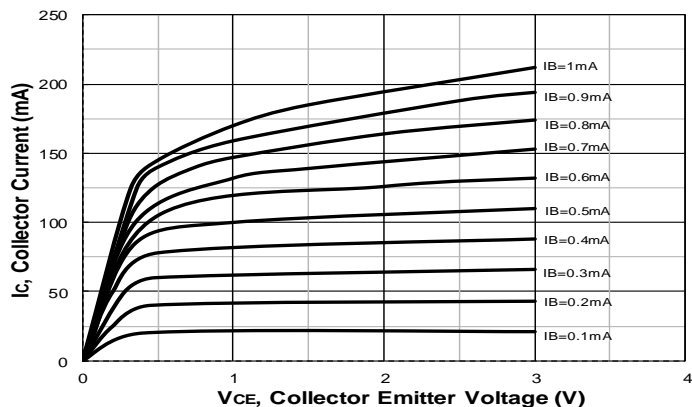


FIG.2 - $h_{FE} - I_C$

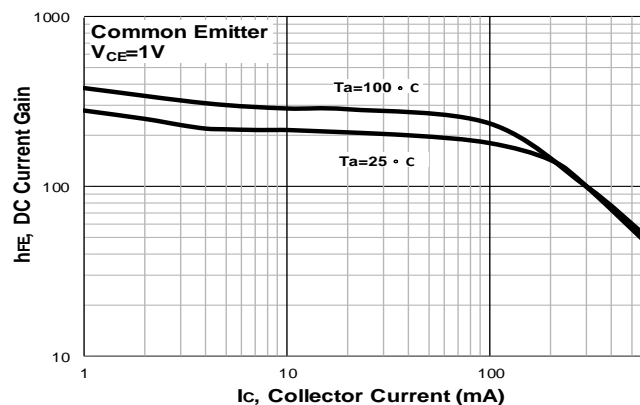


FIG.3 - $V_{CEsat} - I_C$

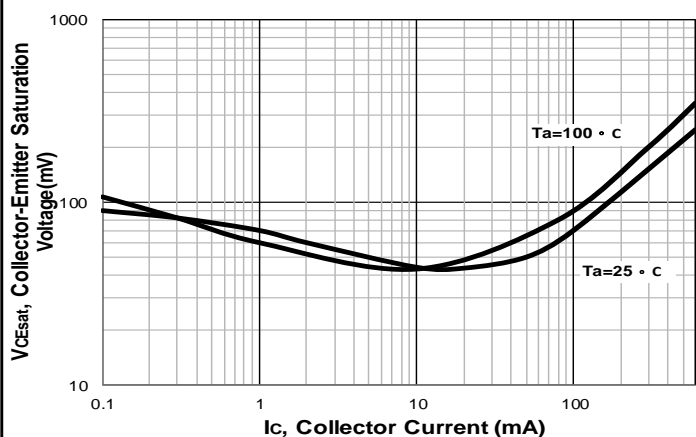


FIG.4 - $V_{BEsat} - I_C$

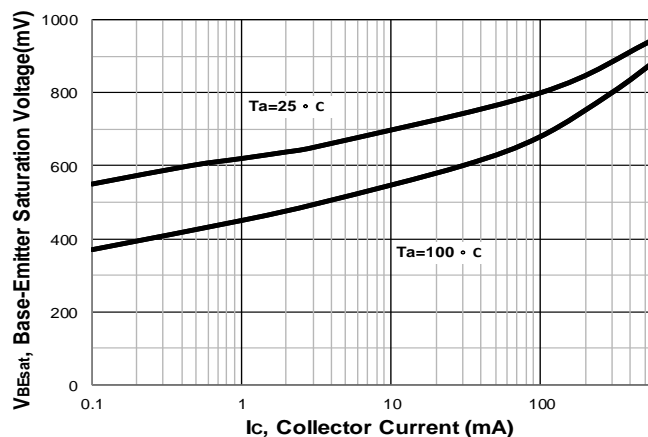


FIG.5 - $I_C - V_{BE}$

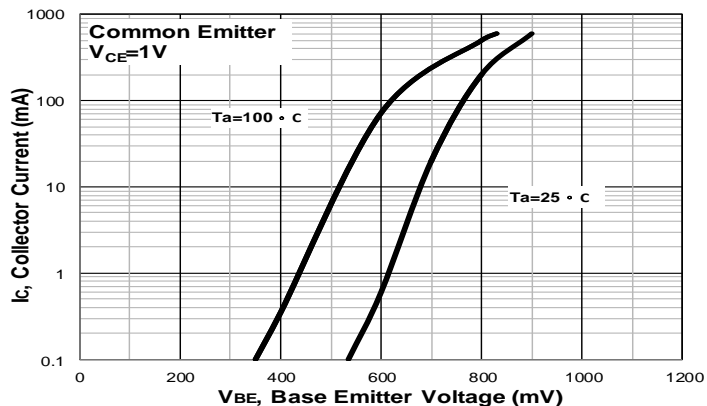
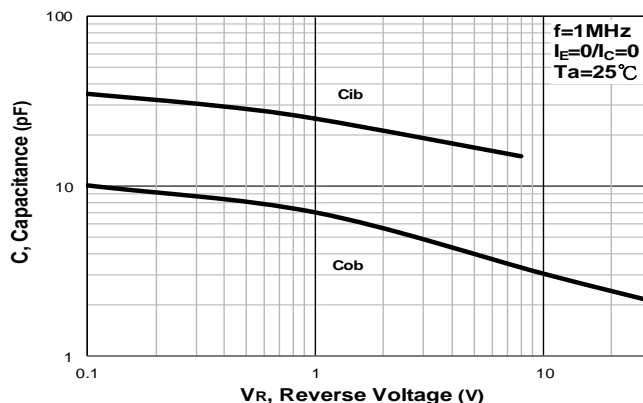
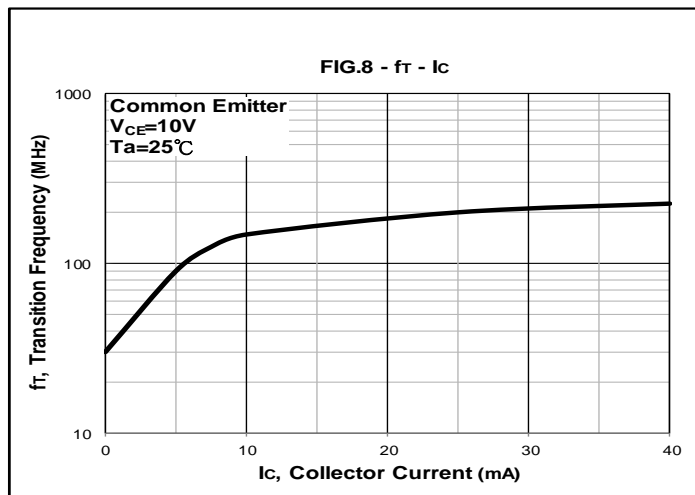
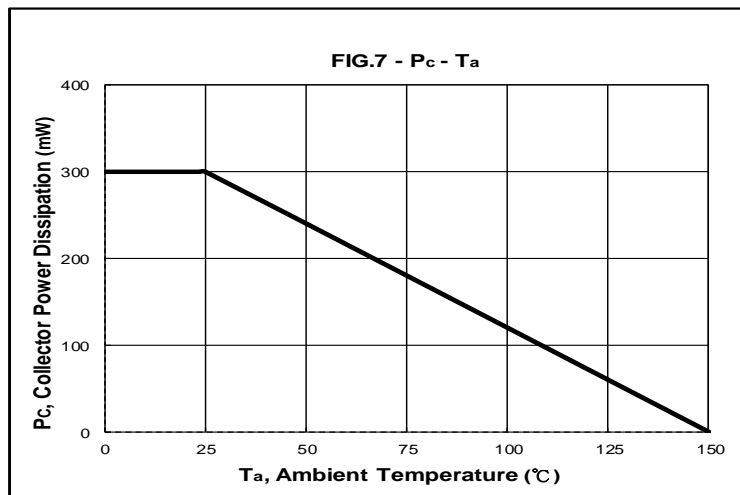


FIG.6 - $C_{ob}/C_{ib} - V_{CB}/V_{EB}$



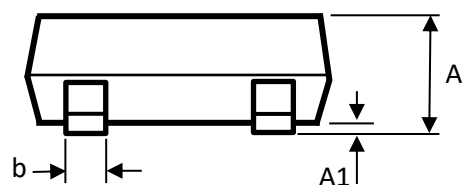
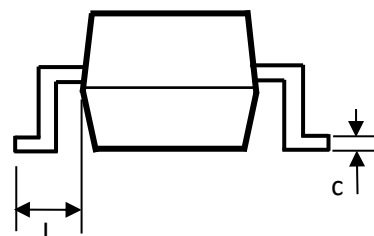
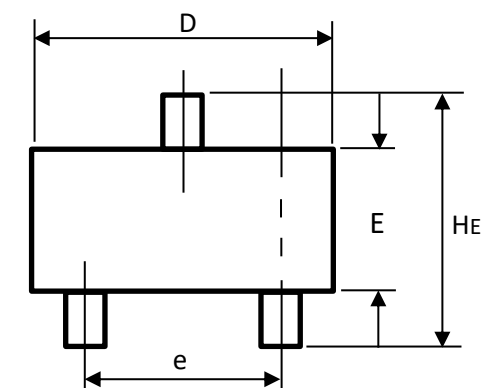


Rating and Characteristic Curves



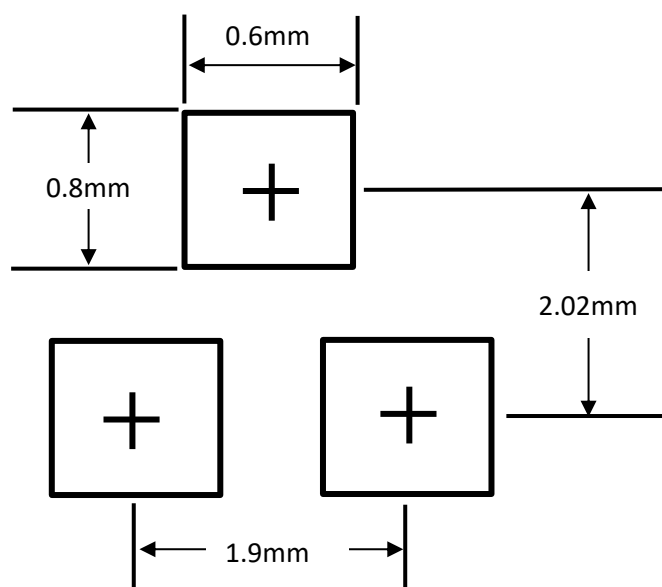


Package Outline Dimensions



SOT23 Package		
Dim	Min	Max
A	0.90	1.15
A1	0.00	0.10
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
e	1.80	2.00
L	0.55 REF	
HE	2.25	2.55
All Dimensions in mm		

Suggested Soldering Pad Layout



Note:

- 1.The pad layout is for reference purposes only.
- 2.General tolerance $\pm 0.05\text{mm}$



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