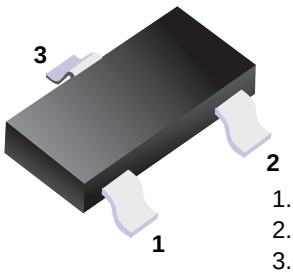
NPN Transistors



1.Base
2.Emitter
3.Collector

SOT-23

Features

- High DC Current gain.
- Complimentary to 2SB624

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	30	V
Collector - Emitter Voltage	V_{CEO}	25	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_C	700	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

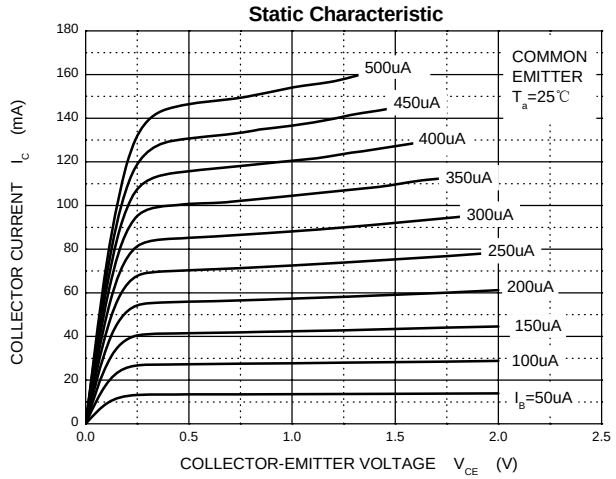
Electrical Characteristics (Ta=25℃ unless otherwise specified.)

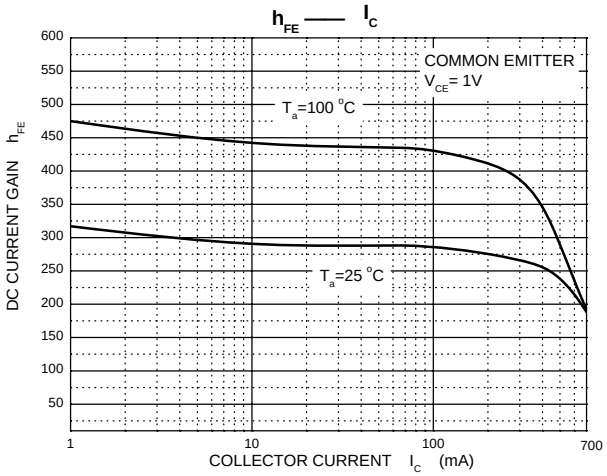
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	I_C= 100 μA, I_E= 0	30			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= 1 mA, I_B= 0	25			
Emitter - base breakdown voltage	V_{EBO}	I_E= 100 μ A, I_C= 0	5			
Collector-base cut-off current	I_{CBO}	V_{CB}= 30 V , I_E= 0			100	nA
Emitter cut-off current	I_{EBO}	V_{EB}= 5V , I_C=0			100	
Collector-emitter saturation voltage (Note.1)	$V_{CE(sat)}$	I_C=700 mA, I_B=70mA			0.6	V
Base - emitter saturation voltage (Note.1)	$V_{BE(sat)}$	I_C=700 mA, I_B=70mA			1.2	
Base - emitter voltage (Note.1)	V_{BE}	V_{CE}= 6V, I_C= 10mA	0.6		0.7	
DC current gain (Note.1)	$h_{FE(1)}$	V_{CE}= 1V, I_C= 100mA	110		400	
	$h_{FE(2)}$	V_{CE}= 1V, I_C= 700mA	50			
Collector output capacitance	C_{ob}	V_{CB}= 6V, I_E= 10mA , f=10MHz		12		pF
Transition frequency	f_T	V_{CE}= 6V, I_C= 10mA	170			MHz

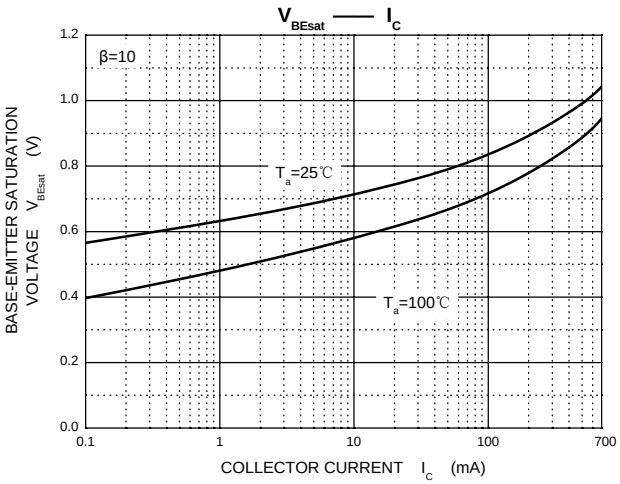
Note.1: Pulse test : Pulse width ≤350μs,Duty Cycle≤2%.

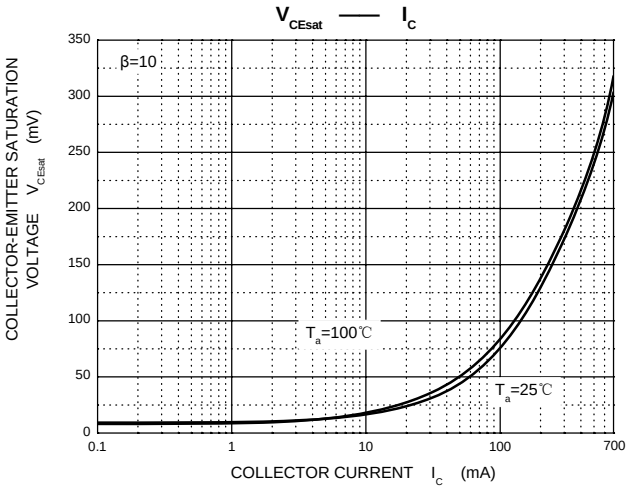
h_{FE} Classification

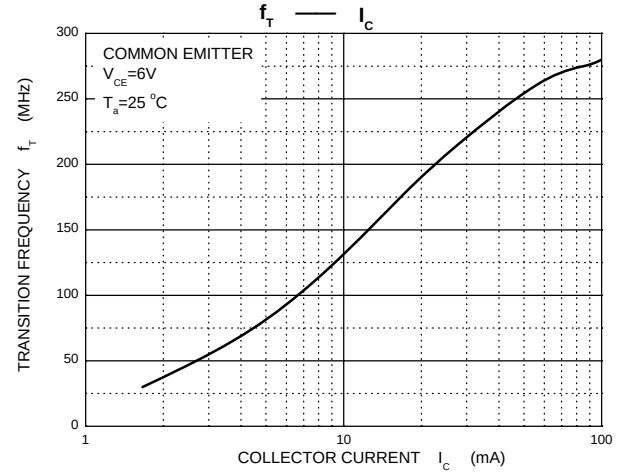
Type	2SD596-DV1	2SD596-DV2	2SD596-DV3	2SD596-DV4	2SD596-DV5
Range	110-180	135-220	170-270	200-320	250-400
Marking	DV1	DV2	DV3	DV4	DV5

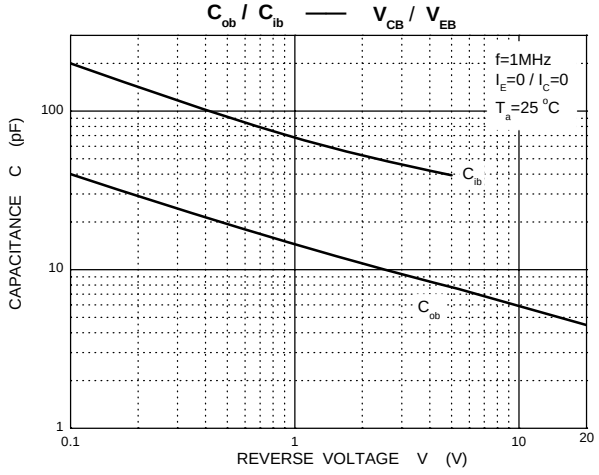

Static Characteristic
COMMON EMITTER
T_a=25℃
500uA
450uA
400uA
350uA
300uA
250uA
200uA
150uA
100uA
I_B=50uA
COLLECTOR CURRENT I_C (mA)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)

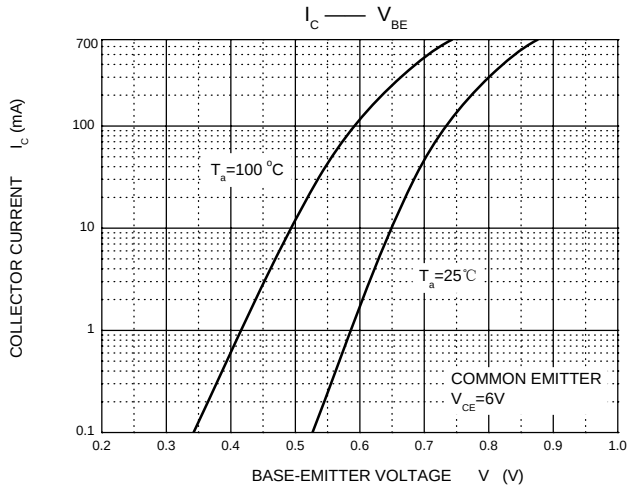

h_{FE} —— I_C
COMMON EMITTER
V_{CE}= 1V
T_a=100 °C
T_a=25 °C
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (mA)

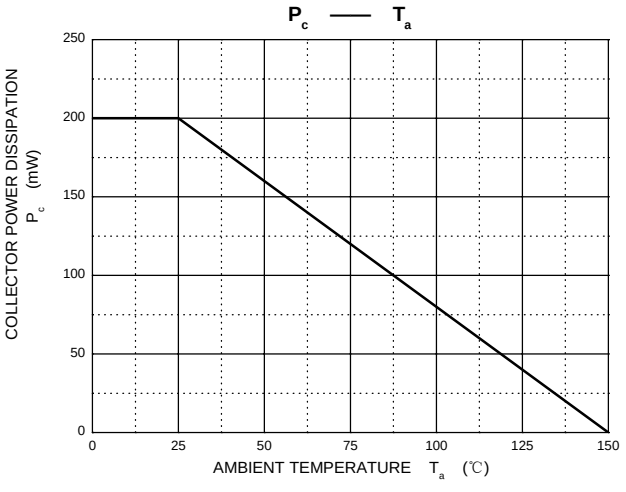

V_{BEsat} —— I_C
β=10
T_a=25℃
T_a=100℃
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (V)
COLLECTOR CURRENT I_C (mA)


V_{CEsat} —— I_C
β=10
T_a=100℃
T_a=25℃
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (mV)
COLLECTOR CURRENT I_C (mA)


f_T —— I_C
COMMON EMITTER
V_{CE}=6V
T_a=25 °C
TRANSITION FREQUENCY f_T (MHz)
COLLECTOR CURRENT I_C (mA)


C_{ob} / C_{ib} —— V_{CB} / V_{EB}
f=1MHz
I_E=0 / I_C=0
T_a=25 °C
C_{ib}
C_{ob}
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)


I_C —— V_{BE}
T_a=100 °C
T_a=25℃
COMMON EMITTER
V_{CE}=6V
COLLECTOR CURRENT I_C (mA)
BASE-EMITTER VOLTAGE V (V)

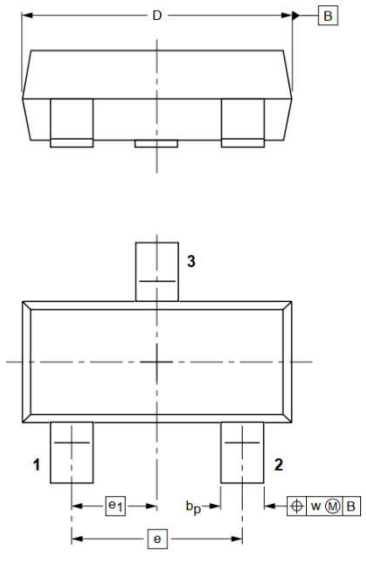

P_c —— T_a
COLLECTOR POWER DISSIPATION P_c (mW)
AMBIENT TEMPERATURE T_a (℃)

Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel,7"reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

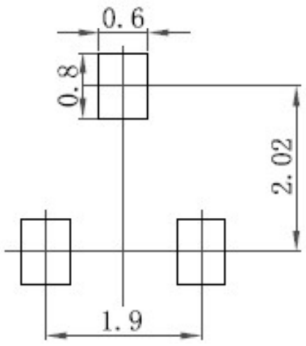
Package Dimensions

SOT-23



Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



Disclaimer

The information presented in this document is for reference only. GuangDong Youfeng Microelectronics Co.,Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise. The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices),YFW or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale. This publication supersedes & replaces all information previously supplied. For additional information, please visit our website https://www.yfwdiode.com, or consult YFW sales office for further assistance.