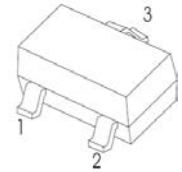


## SOT-23 Plastic-Encapsulate Transistors

High voltage transistor

AEC-Q101 qualified (Automotive grade with suffix "Q".)

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

MARKING:2D

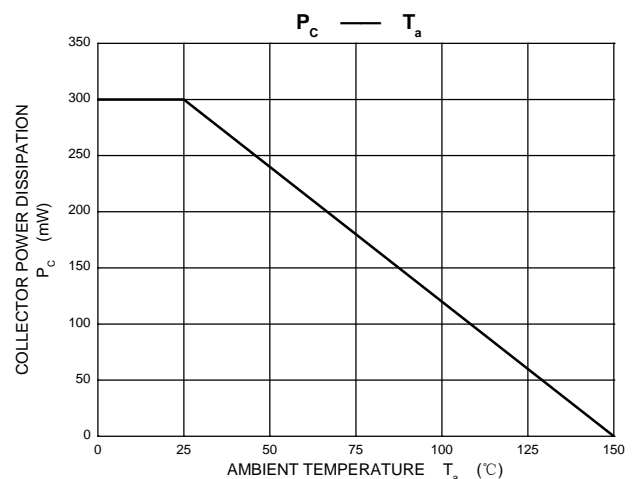
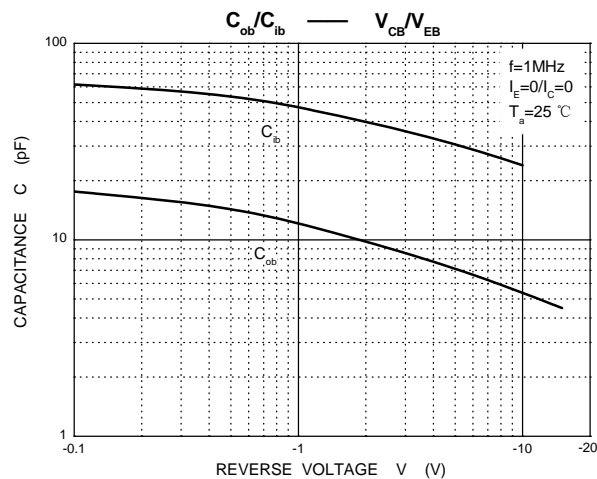
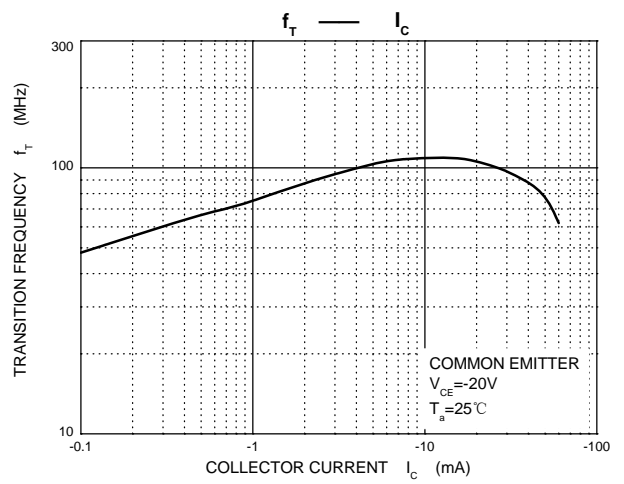
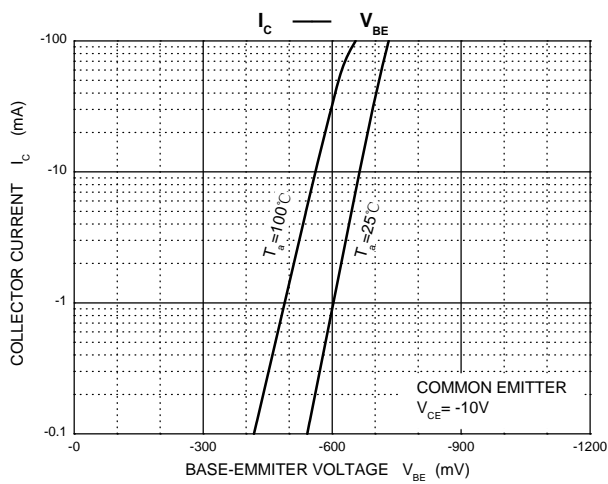
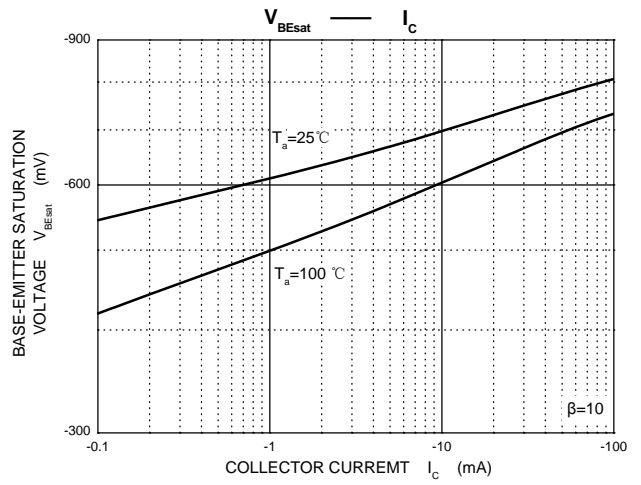
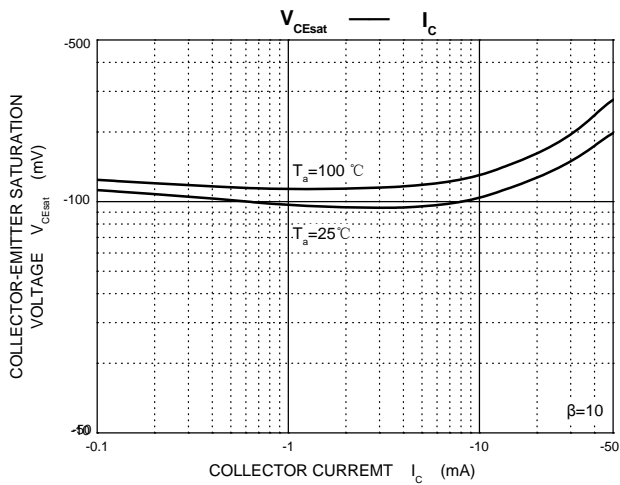
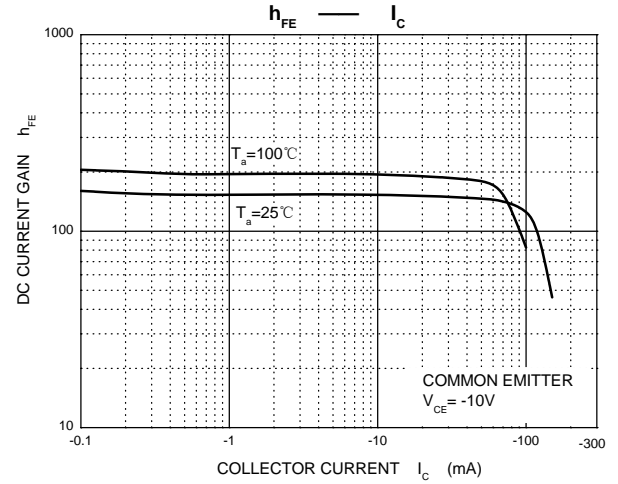
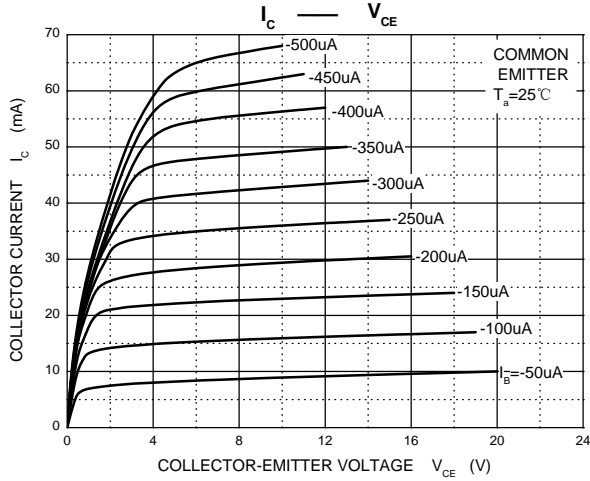
MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CB0}$	Collector-Base Voltage	-300	V
$V_{CE0}$	Collector-Emitter Voltage	-300	V
$V_{EB0}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current -Continuous	-200	mA
$I_{CM}$	Collector Current -Pulsed	-500	mA
$P_C$	Collector Power Dissipation	300	mW
$T_J, T_{stg}$	Operation Junction and Storage Temperature Range	-55-150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	417	$^\circ\text{C/W}$

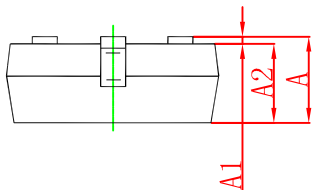
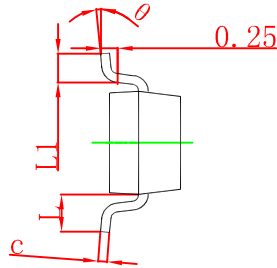
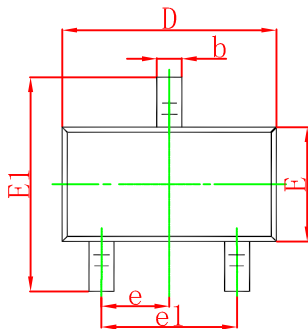
ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0$	-300		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, I_B = 0$	-300		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}, I_C = 0$	-5		V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -200\text{V}, I_E = 0$		-0.25	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{V}, I_C = 0$		-0.1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE} = -10\text{V}, I_C = -1\text{mA}$	60		
	$h_{FE(2)}$	$V_{CE} = -10\text{V}, I_C = -10\text{mA}$	100	200	
	$h_{FE(3)}$	$V_{CE} = -10\text{V}, I_C = -30\text{mA}$	60		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -20\text{mA}, I_B = -2\text{mA}$		-0.2	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -20\text{mA}, I_B = -2\text{mA}$		-0.9	V
Transition frequency	$f_T$	$V_{CE} = -20\text{V}, I_C = -10\text{mA}$ $f = 30\text{MHz}$	50		MHz

Typical Characteristics

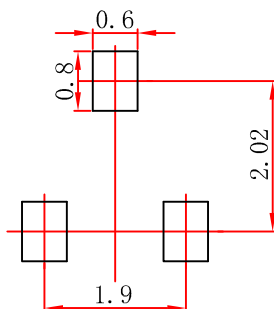


## SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
$\theta$	0°	8°	0°	8°

## SOT-23 Suggested Pad Layout



## Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$ mm.
3. The pad layout is for reference purposes only.