

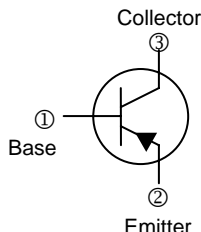
RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## FEATURES

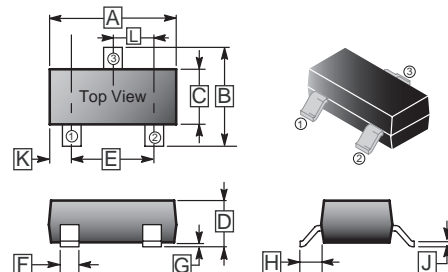
Medium Power Transistor

## MARKING

593



## SOT-23



## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Collector to Emitter Voltage	$V_{CEO}$	-100	V
Collector to Base Voltage	$V_{CBO}$	-120	V
Emitter to Base Voltage	$V_{EBO}$	-5	V
Collector Current - Continuous	$I_C$	-1	A
Total Device Dissipation	$P_D$	250	mW
Junction and Storage Temperature	$T_J, T_{STG}$	150,	°C

REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.80	3.00	G	0.10 REF.	
B	2.25	2.55	H	0.55 REF.	
C	1.20	1.40	J	0.08	0.15
D	0.90	1.15	K	0.5 REF.	
E	1.80	2.00	L	0.95 TYP.	
F	0.30	0.50			

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	-100	-	-	V	$I_C = -10\text{mA}, I_B = 0$
Collector-Base Breakdown Voltage	$BV_{CBO}$	-120	-	-	V	$I_C = -100\mu\text{A}, I_E = 0$
Emitter-Base Breakdown Voltage	$BV_{EBO}$	-5	-	-	V	$I_E = -100\mu\text{A}, I_C = 0$
Collector Cut-off Current	$I_{CBO}$	-	-	-0.1	$\mu\text{A}$	$V_{CB} = -100\text{V}, I_E = 0$
Collector Cut-off Current	$I_{CES}$	-	-	-0.1	$\mu\text{A}$	$V_{CE} = -100\text{V}, I_E = 0$
Emitter Cut-off Current	$I_{EBO}$	-	-	-0.1	$\mu\text{A}$	$V_{EB} = -4\text{V}, I_C = 0$
DC Current Gain	$h_{FE(1)*}$	100	-	-	-	$I_C = -1\text{mA}, V_{CE} = -5.0\text{V}$
	$h_{FE(2)*}$	100	-	-	-	$I_C = -250\text{mA}, V_{CE} = -5.0\text{V}$
	$h_{FE(3)*}$	100	-	300	-	$I_C = -0.5\text{A}, V_{CE} = -5.0\text{V}$
	$h_{FE(4)*}$	50	-	-	-	$I_C = -1\text{A}, V_{CE} = -5.0\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)*}$	-	-	-0.2	V	$I_C = -250\text{mA}, I_B = -25\text{mA}$
	$V_{CE(sat)*}$	-	-	-0.3	V	$I_C = -500\text{mA}, I_B = -50\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)*}$	-	-	-1.1	V	$I_C = -500\text{mA}, I_B = -50\text{mA}$
Base-Emitter Voltage	$V_{BE(on)*}$	-	-	-1.0	V	$V_{CE} = -5\text{V}, I_C = 1\text{mA}$
Transition Frequency	$f_T$	150	-	-	MHz	$V_{CE} = -10\text{V}, I_C = 50\text{mA}, f = 100\text{MHz}$
Collector Output Capacitance	$C_{OB}$	-	-	5.0	pF	$V_{CB} = -10\text{V}, I_E = 0, f = 1.0\text{MHz}$

\*Pulse test: Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$

**CHARACTERISTICS CURVE**

