

FEATURES

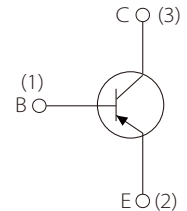
| Reduces Board Space

| High hFE

| Low $V_{CE(sat)}$



SOT-523



Schematic Symbol

MECHANICAL DATA

| SOT-523 small outline plastic package

| Epoxy UL: 94V-0

| Mounting position: Any

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-50	
Emitter-Base Voltage	V_{EBO}	-6	
Collector Current	I_C	-150	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (T_A=25°C)

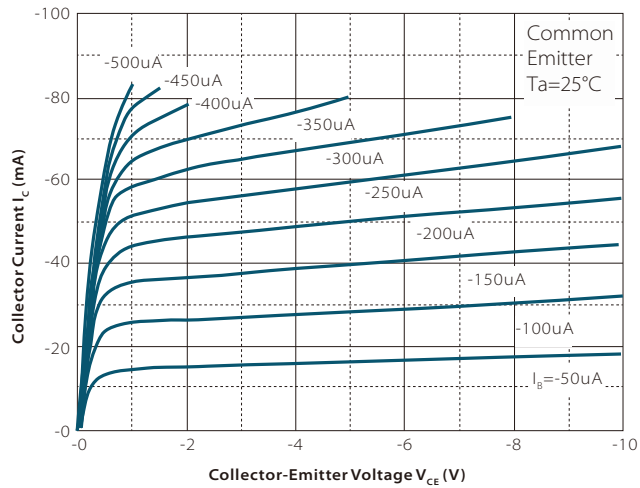
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector- base breakdown voltage	V _{CBO}	I _C =-50uA, I _E =0	-60			V
Collector- emitter breakdown voltage	V _{CEO}	I _C =-1mA, I _B =0	-50			
Emitter - base breakdown voltage	V _{EBO}	I _E =-50uA, I _C =0	-6			
Collector-base cut-off current	I _{CBO}	V _{CB} = -60V, I _E =0			-100	nA
Emitter cut-off current	I _{EBO}	V _{EB} =-6V, I _C =0			-100	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =-50mA, I _B =-5mA			-0.5	V
Base - emitter saturation voltage	V _{BE(sat)}	I _C =-50mA, I _B =-5mA			-1.2	
DC current gain	h _{FE}	V _{CE} =-6V, I _C =-1mA	120		560	
Collector output capacitance	C _{ob}	V _{CB} =-12V, I _E =0, f=1MHz		3.5	5	pF
Transition frequency	f _T	V _{CE} =-12V, I _C =-2mA, f=30MHz		140		MHz

CLASSIFICATION OF H_{FE(1)}

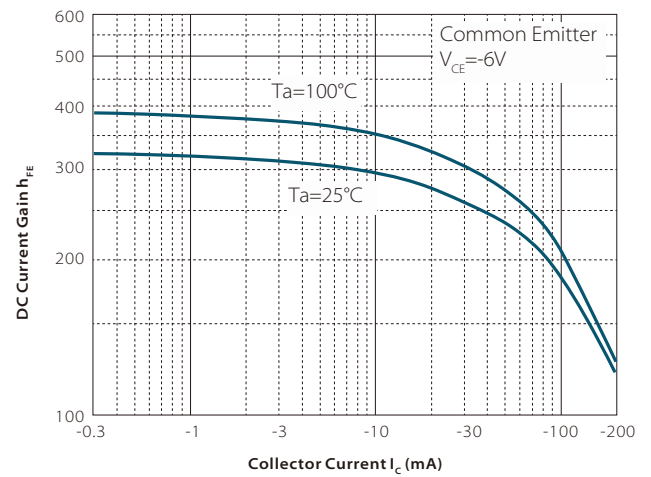
Rank	P	Q	R	S
Range	120-200	120-270	180-390	270-560
Marking	FP	FQ	FR	FS

TYPICAL CHARACTERISTICS

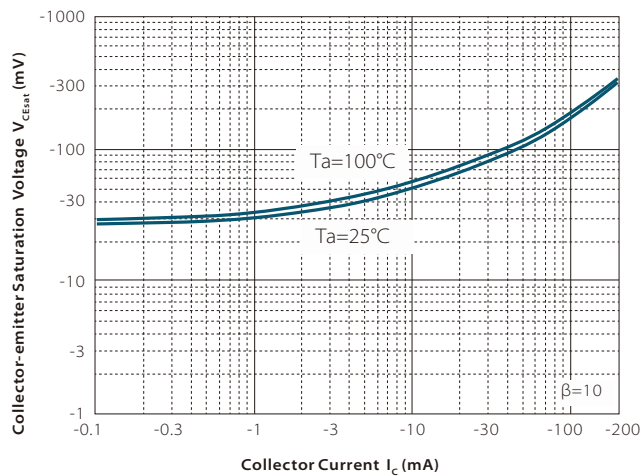
Static Characteristic



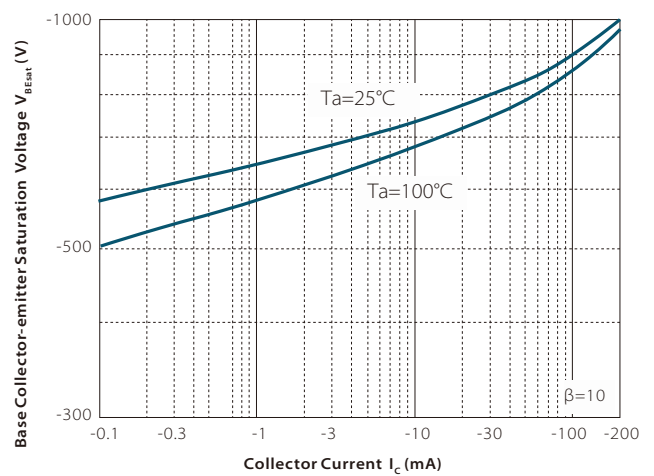
h_{FE} — I_C

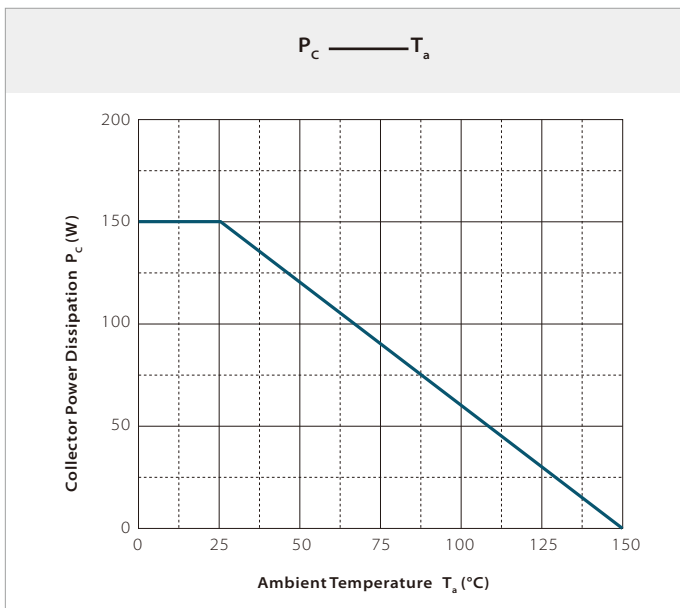
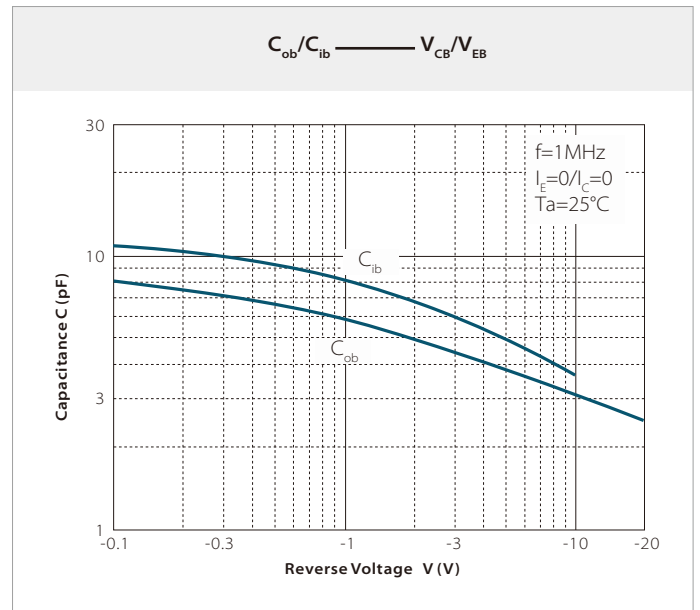
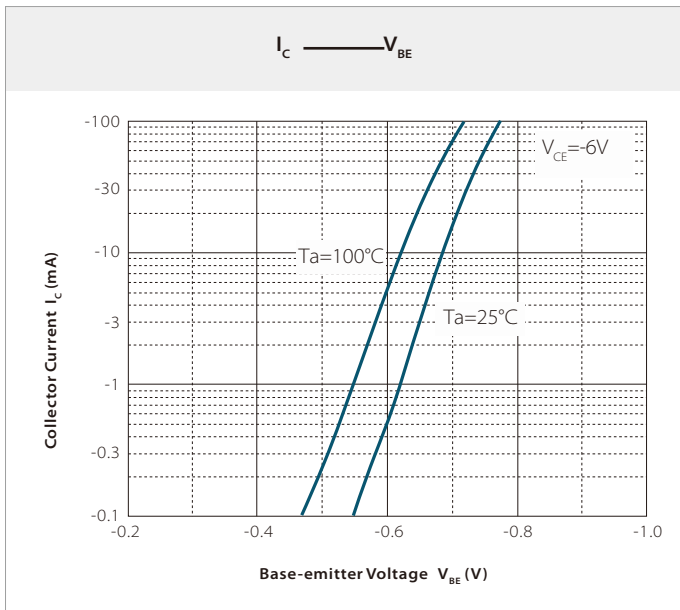


$V_{CE sat}$ — I_C



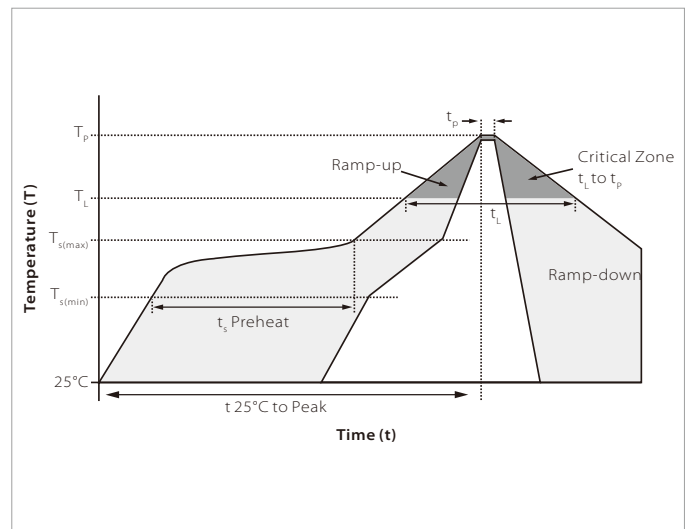
$V_{BE sat}$ — I_C



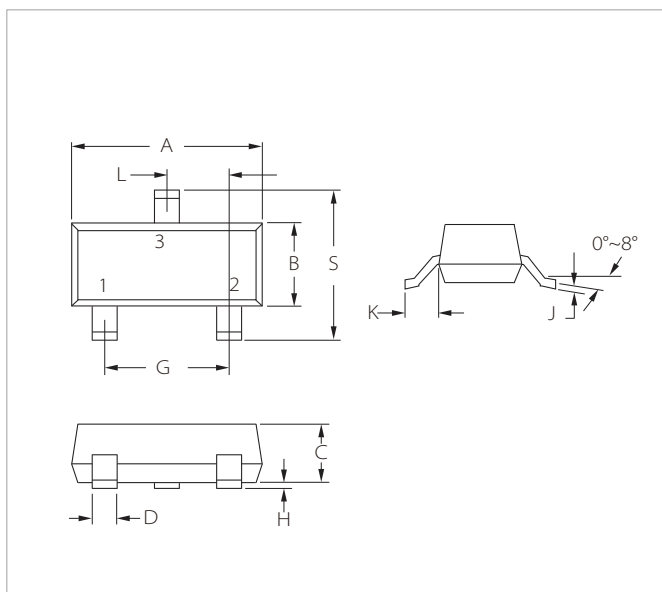


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

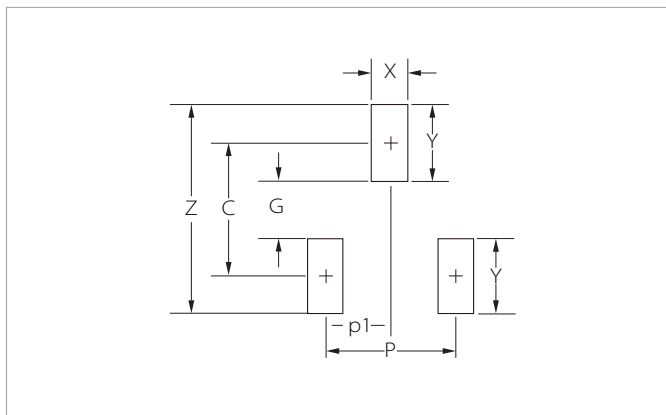


SOT-523 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.50	1.70	0.059	0.067
B	0.75	0.85	0.029	0.033
C	0.60	0.80	0.023	0.031
D	0.15	0.30	0.005	0.012
G	1.00BSC		0.039BSC	
H	0.00	0.10	0.000	0.004
J	0.10	0.20	0.004	0.008
K	(0.22)		(0.009)	
L	0.50BSC		0.020BSC	
S	1.45	1.75	0.057	0.069

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
C	(1.40)	(0.055)
P	1.00	0.039
p1	0.50	0.020
G	0.60	0.024
X	0.40	0.016
Y	0.80	0.031
Z	2.20	0.087

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
2SA1774T	SOT-523	3000PCS	7"

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