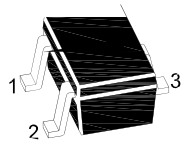
NPN Silicon General Purpose Transistor

for switching and amplifier applications.



1.Base 2.Emitter 3.Collector
SOT-523 Plastic Package

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	60	V
Collector Emitter Voltage	V_{CEO}	40	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	200	mA
Power Dissipation	P_{tot}	150	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain				
at V_{CE} = 1 V, I_C = 0.1 mA	h_{FE}	40	-	-
at V_{CE} = 1 V, I_C = 1 mA	h_{FE}	70	-	-
at V_{CE} = 1 V, I_C = 10 mA	h_{FE}	100	300	-
at V_{CE} = 1 V, I_C = 50 mA	h_{FE}	60	-	-
at V_{CE} = 1 V, I_C = 100 mA	h_{FE}	30	-	-
Collector Base Cutoff Current at V_{CB} = 30 V	I_{CBO}	-	50	nA
Base Base Cutoff Current at V_{EB} = 6 V	I_{EBO}	-	50	nA
Collector Base Breakdown Voltage at I_C = 10 µA	$V_{(BR)CBO}$	60	-	V
Collector Emitter Breakdown Voltage at I_C = 1 mA	$V_{(BR)CEO}$	40	-	V
Emitter Base Breakdown Voltage at I_E = 10 µA	$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage				
at I_C = 10 mA, I_B = 1 mA	$V_{CE(sat)}$	-	0.2	V
at I_C = 50 mA, I_B = 5 mA	$V_{CE(sat)}$	-	0.3	V
Base Emitter Saturation Voltage				
at I_C = 10 mA, I_B = 1 mA	$V_{BE(sat)}$	0.65	0.85	V
at I_C = 50 mA, I_B = 5 mA	$V_{BE(sat)}$	-	0.95	V
Current Gain Bandwidth Product at V_{CE} = 20 V, I_C = 10 mA, f = 100 MHz	f_T	300	-	MHz
Collector Output Capacitance at V_{CB} = 5 V, f = 1 MHz	C_{ob}	-	4	pF
Delay Time at V_{CC} = 3 V, V_{BE} = 0.5 V, I_C = 10 mA, I_{B1} = 1 mA	t_d	-	35	ns
Rise Time at V_{CC} = 3 V, V_{BE} = 0.5 V, I_C = 10 mA, I_{B1} = 1 mA	t_r	-	35	ns
Storage Time at V_{CC} = 3 V, I_C = 10 mA, I_{B1} = -I_{B2} = 1 mA	t_s	-	200	ns
Fall Time at V_{CC} = 3 V, I_C = 10 mA, I_{B1} = -I_{B2} = 1 mA	t_f	-	50	ns

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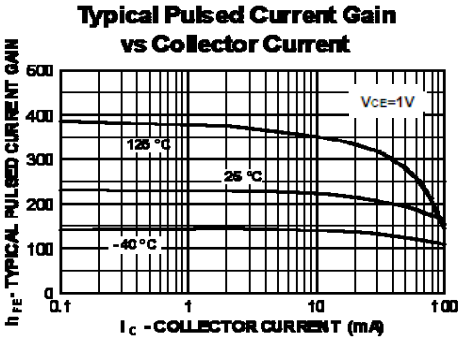

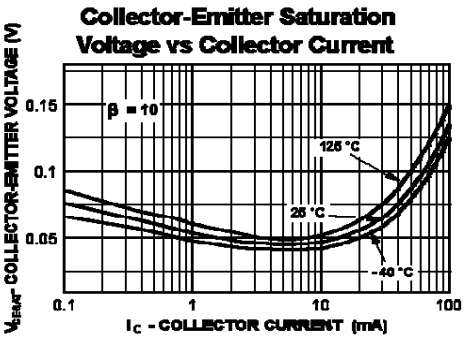

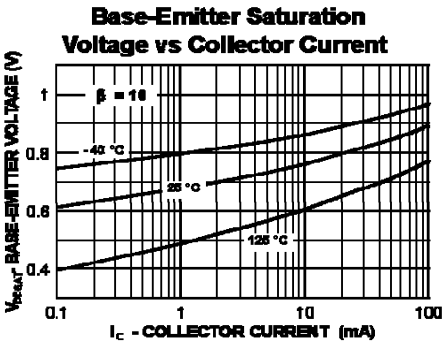

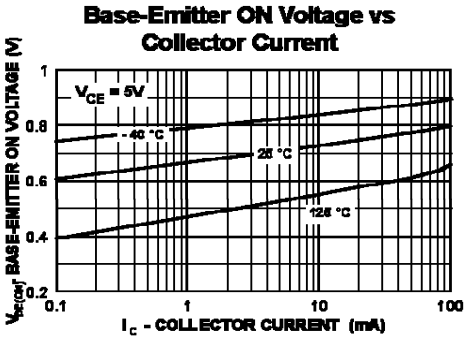

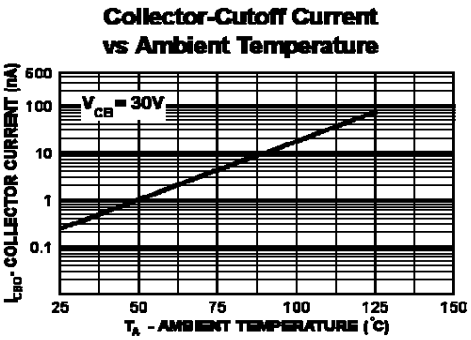

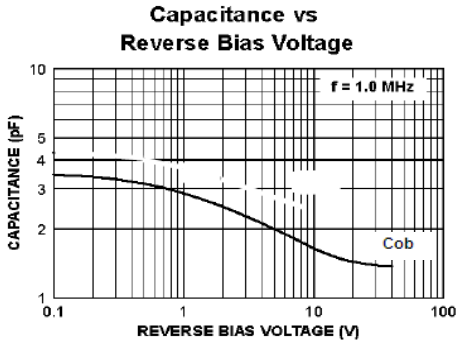

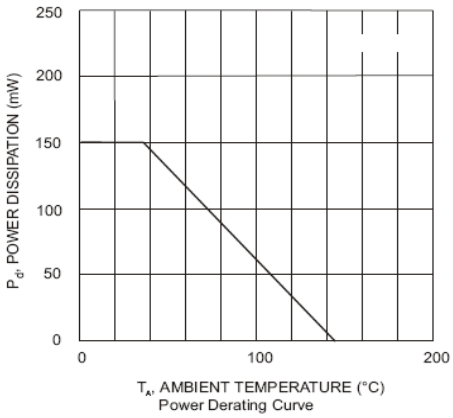

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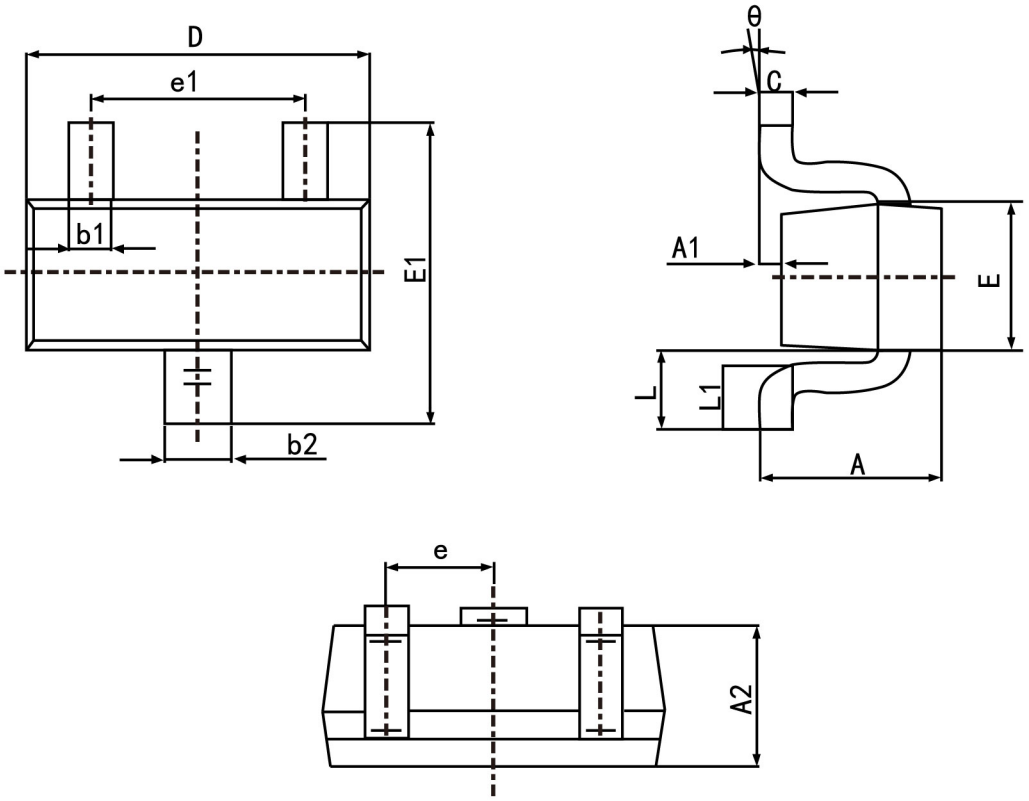
PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-523**



Symbol	Dimension in Millimeters	
	Min	Max
A	0.700	0.900
A1	0.000	0.100
A2	0.700	0.800
b1	0.150	0.250
b2	0.250	0.350
c	0.100	0.200
D	1.500	1.700
E	0.700	0.900
E1	1.450	1.750
e	0.500	TYP.
e1	0.900	1.100
L	0.400 REF.	
L1	0.260	0.460
θ	0°	8°

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