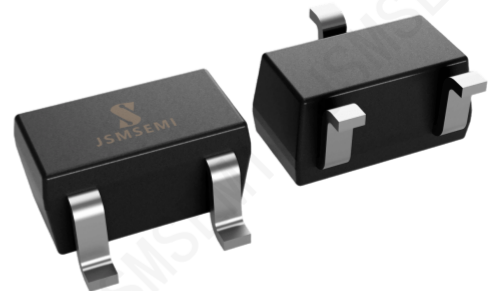


Description

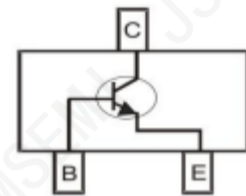
The S8050T-JSM is an NPN transistor in a SOT-523 package, designed as a complementary device to the S8550T. It is suitable for general-purpose amplification and switching applications, offering reliable performance with specified current and voltage ratings. The transistor features a compact package, making it ideal for space-constrained circuit designs.

Features

- Complementary to S8550T
- Collector Current (I): 0.5 A (continuous)
- Low saturation voltage for efficient switching
- High DC current gain (H_{FE}) with typical values up to 400
- Transition frequency (f_T): 150 MHz for high-frequency applications Compact SOT-523 package for surface-mount
- technology (SMT)
- Marking: J3Y for easy identification



SOT-523



Circuit Diagram

Applications

- General-purpose amplification circuits
- Switching applications in consumer electronics
- Signal processing systems
- DC-DC converter circuits
- Battery-powered devices requiring low power consumption
- Portable electronics and automotive electronics

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship, Quantity	Green
S8050T-JSM	SOT-523	J3Y	-55 to 150°C	3	T&R,3000	Rohs

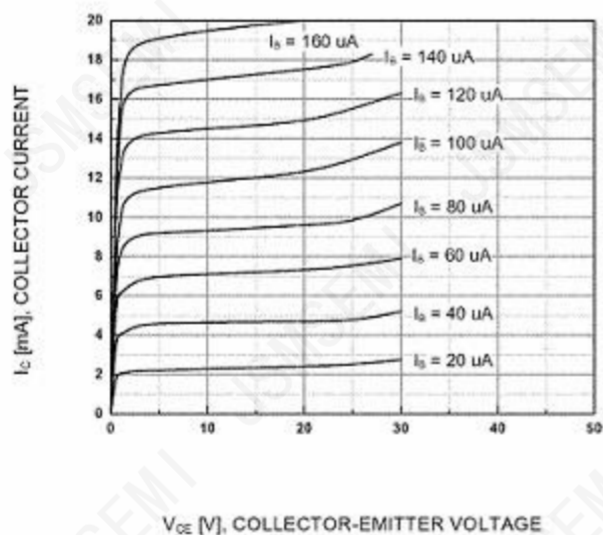
Absolute Maximum Ratings(TA=25°C unless otherwise specified)

Symbol	Parameter	Value	Units
V _{CBO}	Collector-Base Voltage	40	V
V _{CEO}	Collector-Emitter Voltage	25	V
V _{EBO}	Emitter-Base Voltage	5	V
I _C	Collector Current-Continuous	0.5	A
P _C	Collector Dissipation	0.3	W
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55-150	°C

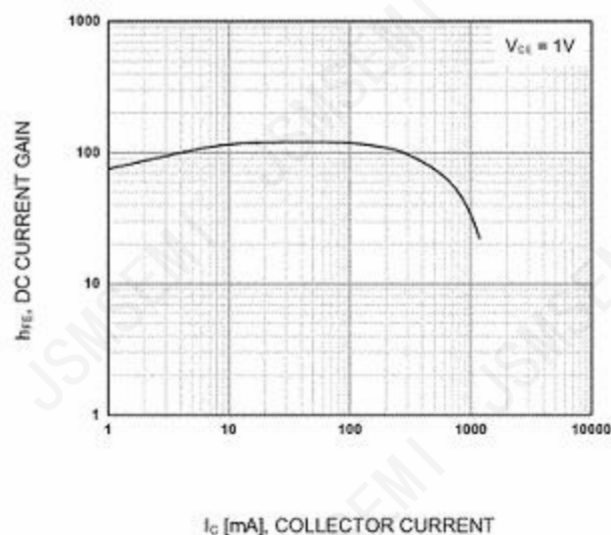
Electrical Characteristics(TA=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V _{(BR)CBO}	I _C = 100μA, I _E =0	40			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =1mA, I _B =0	25			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =100μA, I _C =0	5			V
Collector cut-off current	I _{CBO}	V _{CB} =40 V, I _E =0			0.1	μA
Collector cut-off current	I _{CEO}	V _{CE} =20V, I _E =0			0.1	μA
Emitter cut-off current	I _{EBO}	V _{EB} = 5V, I _C =0			0.1	μA
DC current gain	H _{FE(1)}	V _{CE} =1V, I _C = 50mA	120		400	
	H _{FE(2)}	V _{CE} =1V, I _C = 500mA	50			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =500 mA, I _B = 50mA			0.6	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C =500 mA, I _B = 50mA			1.2	V
Transition frequency	f _T	V _{CE} =6V, I _C = 20mA f=30MHz	150			MHz

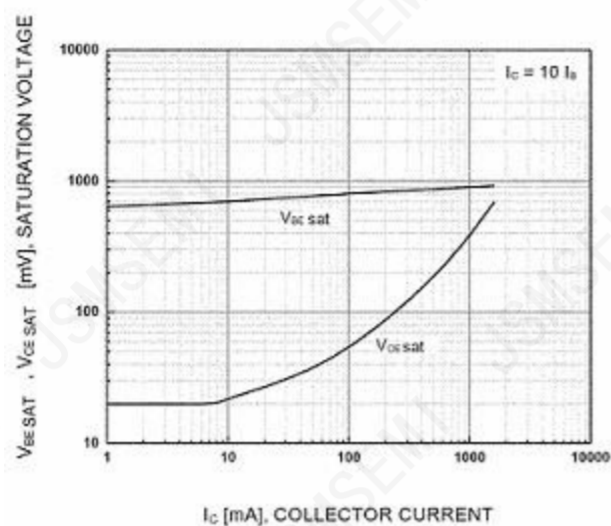
Typical Performance Curves



Static Characteristic



DC current Gain

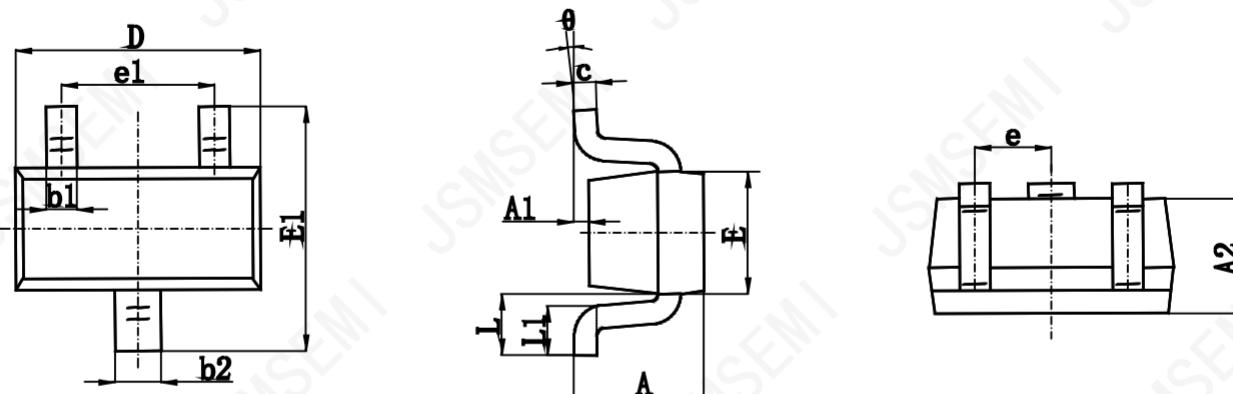


**Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage**



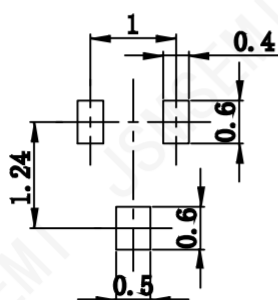
Current Gain Bandwidth Product

SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-523 Suggested Pad Layout



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

Revision History

Rev.	Change	Date
V1.0	Initial version	6/27/2021

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