

Silicon Epitaxial Planar Transistor

PNP, -40V, -200mA

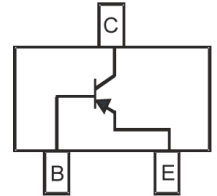


Features:

- Power dissipation ($P_C=200\text{mW}$)
- Epitaxial planar die construction
- Available in lead free version

Applications:

- General purpose application and switching application



Maximum Rating: @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	
Emitter-Base Voltage	V_{EBO}	-5	
Collector Current -Continuous	I_C	-200	mA
Collector Dissipation	P_C	200	mW
Junction and Storage Temperature	T_j, T_{stg}	-55 to 150	$^\circ\text{C}$

Electrical Characteristics: @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-40		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, I_B=0$	-40		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-5		
Collector cut-off current	I_{CBO}	$V_{CB}=-30\text{V}, I_E=0$		-0.05	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=-5\text{V}, I_C=0$		-0.05	
DC current gain	h_{FE}	$V_{CE}=-1\text{V}, I_C=-0.1\text{mA}$ $V_{CE}=-1\text{V}, I_C=-1\text{mA}$ $V_{CE}=-1\text{V}, I_C=-10\text{mA}$ $V_{CE}=-1\text{V}, I_C=-50\text{mA}$ $V_{CE}=-1\text{V}, I_C=-100\text{mA}$	60 80 100 60 30	300	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$ $I_C=-50\text{mA}, I_B=-5\text{mA}$		-0.25 -0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$ $I_C=-50\text{mA}, I_B=-5\text{mA}$	-0.65	-0.85 -0.95	
Transition frequency	f_T	$V_{CE}=-20\text{V}, I_E=-10\text{mA}$ $f=100\text{MHz}$	250		MHz
Collector output capacitance	C_{obo}	$V_{CB}=-5\text{V}, I_E=0, f=1\text{MHz}$		4.5	pF

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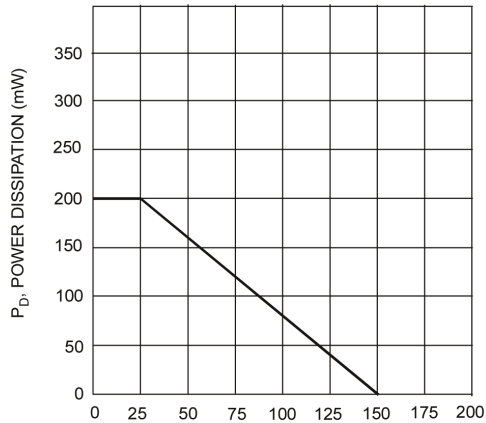
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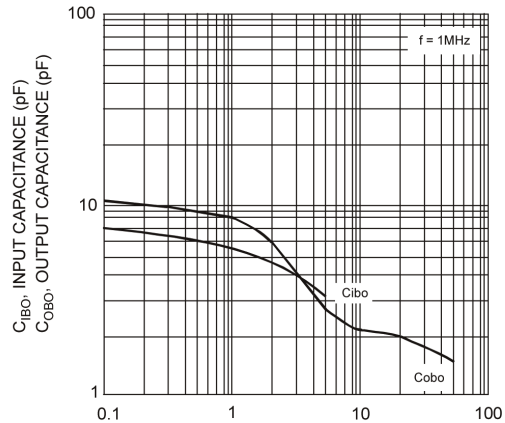
Electrical Characteristics: @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector output capacitance	C_{iob}	$V_{CB} = -5\text{V}, I_E = 0, f = 1\text{MHz}$		10	pF
Noise figure	NF	$V_{CE} = -5\text{V}, I_C = -0.1\text{mA}, f = 1\text{KHz}, R_s = 1\text{K}\Omega$		4	dB
Delay time	t_d	$V_{CC} = -3\text{V}, V_{BE} = -0.5\text{V}, I_C = -10\text{mA}, I_{B1} = -1\text{mA}$		35	nS
Rise time	t_r			35	
Storage time	t_s	$V_{CC} = -3\text{V}, I_C = -10\text{mA}, I_{B1} = I_{B2} = -1\text{mA}$		225	
Fall time	t_f			75	

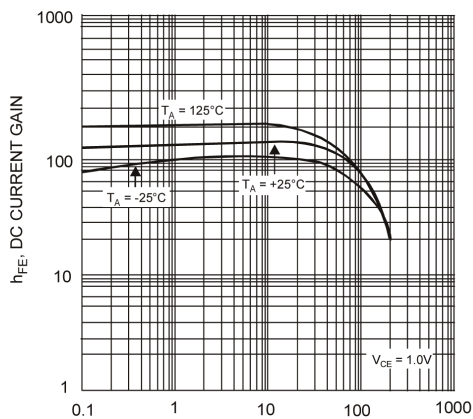
Typical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified



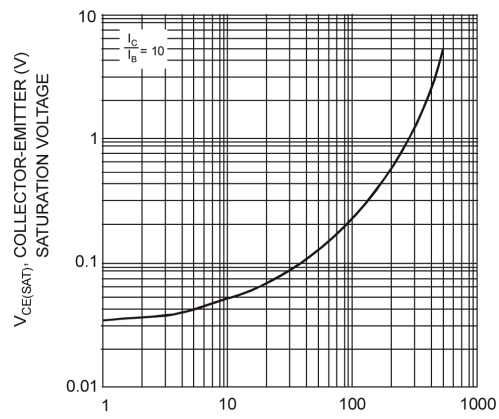
T_A , AMBIENT TEMPERATURE ($^\circ\text{C}$)
Fig. 1, Max Power Dissipation vs. Ambient Temperature



V_{CB} , COLLECTOR-BASE VOLTAGE (V)
Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage



I_C , COLLECTOR CURRENT (mA)
Fig. 3, Typical DC Current Gain vs Collector Current

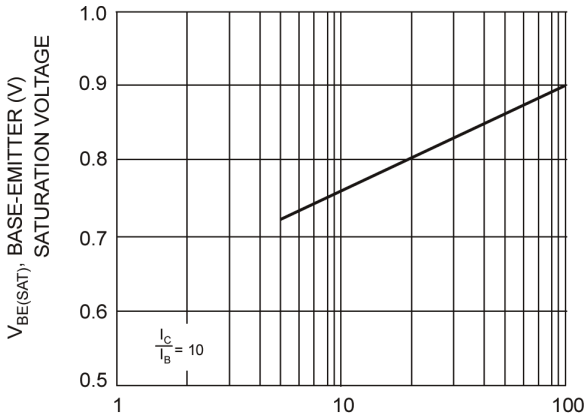


I_C , COLLECTOR CURRENT (mA)
Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current



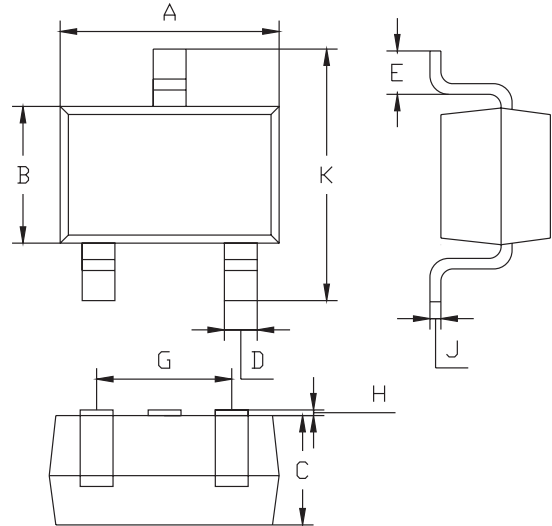
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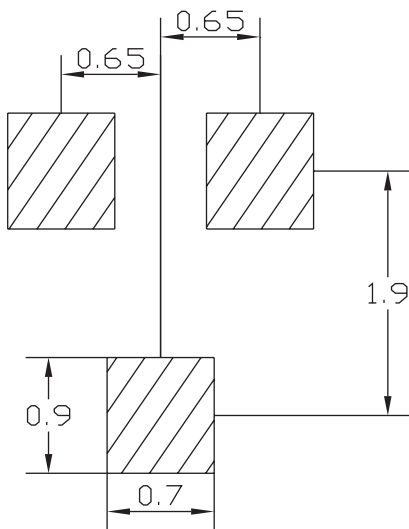


I_C , COLLECTOR CURRENT (mA)
 Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current

Package Outline:



Soldering Footprint:



Dimensions : Millimetres

SOT-323		
Dim.	Min.	Max.
A	1.8	2.2
B	1.15	1.35
C	1 Typical	
D	0.15	0.35
E	0.25	0.4
G	1.2	1.4
H	0.02	0.1
J	0.1 Typical	
K	2.1	2.3

Part Number Table

Description	Part Number
Transistor, Bipolar, PNP, -40V, -200mA	MMST3906-7-F

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