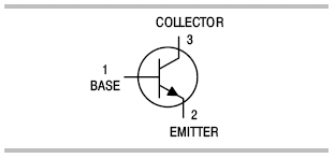
NPN Silicon Epitaxial Planar Transistor **MMST4401**

FEATURES

- Epitaxial planar die construction.
- Complementary PNP type available (MMST4403).
- Ultar-small surface mount package.
- Also available in lead free version.

Lead-free



SOT-323

APPLICATIONS

- Audio frequency general purpose amplifier.

ORDERING INFORMATION

Type No.	Marking	Package Code
MMST4401	K3X	SOT-323

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	**Parameter**	**Value**	**Units**
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	600	mA
P_C	Collector Dissipation	200	mW
$R_{\theta JA}$	Thermal resistance ,Junction to ambient	625	℃/W
T_j, T_{stg}	Junction and Storage Temperature	-55 to +150	℃

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ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA,I_E=0	60		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA,I_B=0	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=100μA,I_C=0	6		V
Collector cut-off current	I_{CEX}	V_{CE}=35V,$V_{EB(OFF)}$=0.4V		0.1	μA
Base cut-off current	I_{BL}	V_{CE}=35V, $V_{EB(OFF)}$=0.4V		0.1	μA
DC current gain	h_{FE}	V_{CE}=1V,I_C=0.1mA V_{CE}=1V,I_C=1.0mA V_{CE}=1V,I_C=10mA V_{CE}=1V,I_C=150mA V_{CE}=2V,I_C=500mA	20 40 80 100 40	300	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=150mA,I_B=15mA I_C=500mA,I_B=50mA		0.4 0.75	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=150mA,I_B=15mA I_C=500mA,I_B=50mA		0.95 1.2	V
Transition frequency	f_T	V_{CE}=10V, I_E=20mA f=100MHz	250		MHz
Collector output capacitance	C_{ob}	V_{CB}=5V, I_E=0,f=1MHz		6.5	pF
Delay time	t_d	V_{CC}=30V,V_{BE}=2V, I_C=150mA,I_B=15mA		15	nS
Rise time	t_r			20	nS
Storage time	t_s	V_{CC}=30V,I_C=150mA, I_{B1}=I_{B2}=15mA		225	nS
Fall time	t_f			30	nS

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TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

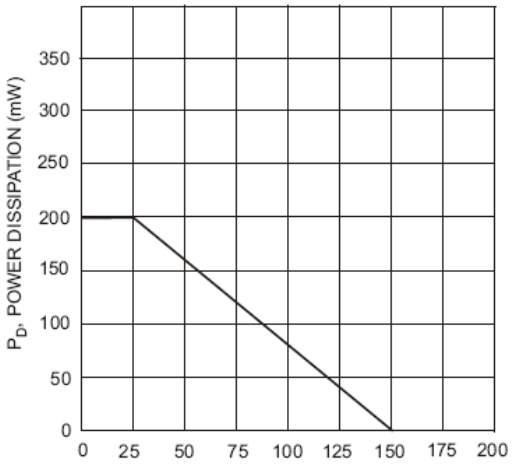

Fig. 1, Max Power Dissipation vs Ambient Temperature

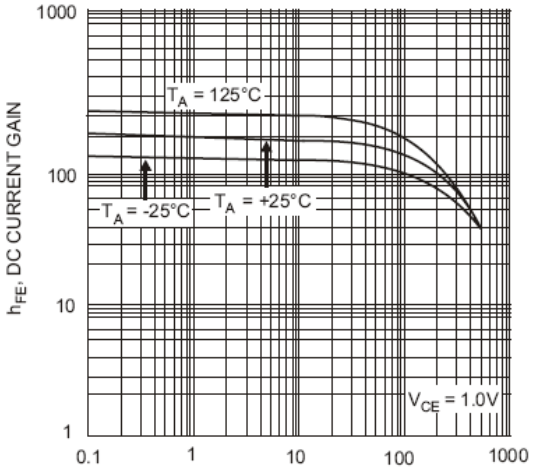

Fig. 2 Typical DC Current Gain vs Collector Current

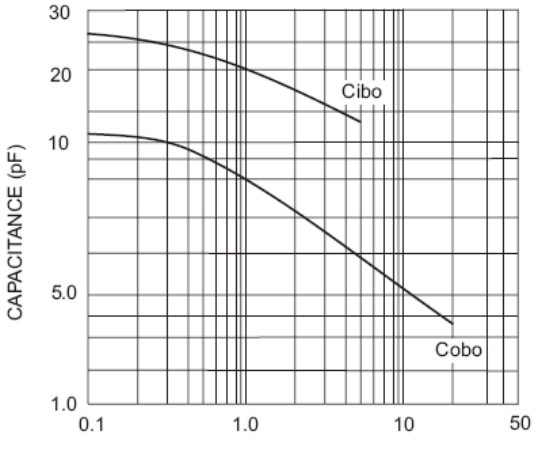

Fig. 3 Typical Capacitance

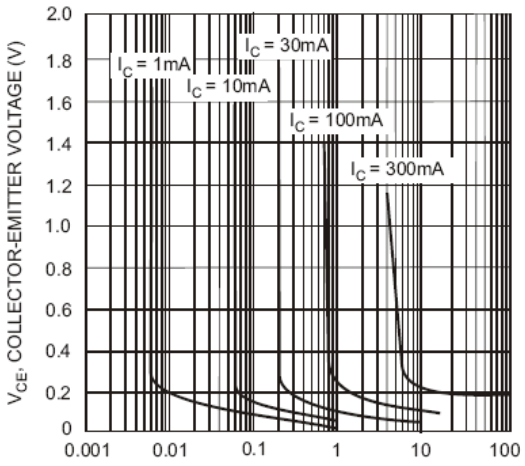

Fig. 4 Typical Collector Saturation Region

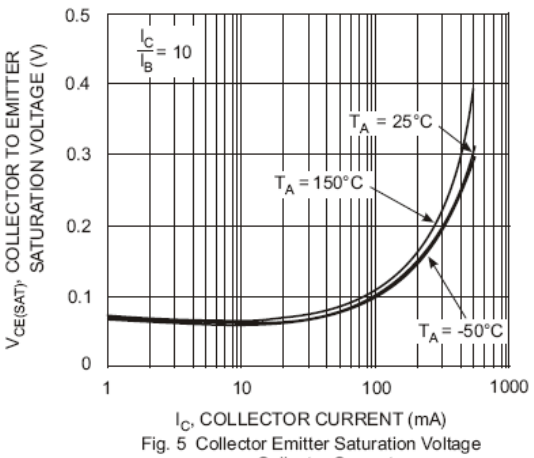

Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

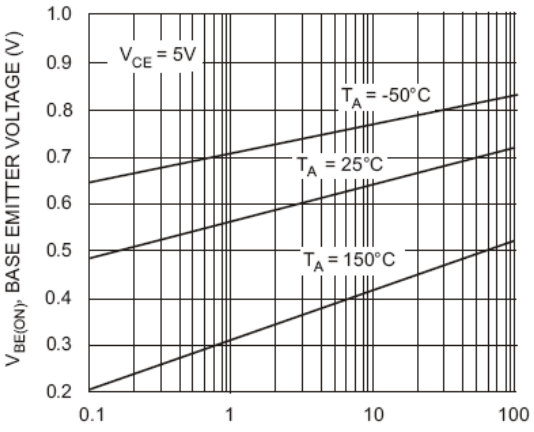

Fig. 6 Base Emitter Voltage vs. Collector Current

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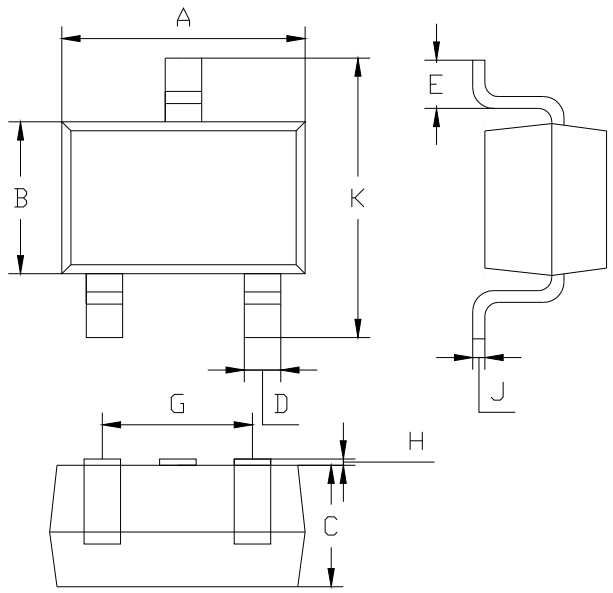
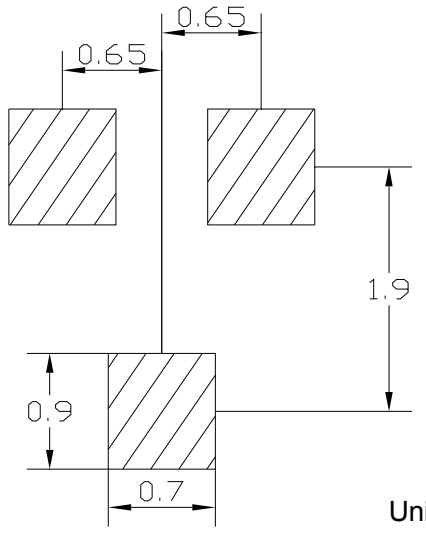
PACKAGE OUTLINE

Plastic surface mounted package SOT-323



SOT-323		
Dim	Min	Max
A	1.8	2.2
B	1.15	1.35
C	1.0Typical	
D	0.15	0.35
E	0.25	0.40
G	1.2	1.4
H	0.02	0.1
J	0.1Typical	
K	2.2	2.4
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
MMST4401	SOT-323	3000/Tape&Reel