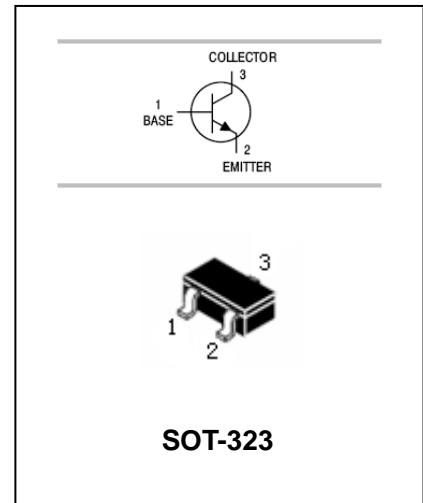


## NPN Silicon Epitaxial Planar Transistor

## MMST4401

### FEATURES

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



### APPLICATIONS

- Audio frequency general purpose amplifier.

### ORDERING INFORMATION

Type No.	Marking	Package Code
MMST4401	K3X	SOT-323

### MAXIMUM RATING @ Ta=25°C 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	°C/W
$T_j, T_{stg}$	Junction and Storage Temperature	-55~150	°C

## NPN Silicon Epitaxial Planar Transistor

## MMST4401

### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	60		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	6		V
Collector cut-off current	$I_{CEX}$	$V_{CE}=35V, V_{EB(OFF)}=0.4V$		0.1	$\mu A$
Base cut-off current	$I_{BL}$	$V_{CE}=35V, V_{EB(OFF)}=0.4V$		0.1	$\mu A$
DC current gain	$h_{FE}$	$V_{CE}=1V, I_C=0.1mA$	20		
		$V_{CE}=1V, I_C=1.0mA$	40		
		$V_{CE}=1V, I_C=10mA$	80		
		$V_{CE}=1V, I_C=150mA$	100	300	
		$V_{CE}=2V, I_C=500mA$	40		
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

### TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

## NPN Silicon Epitaxial Planar Transistor

## MMST4401

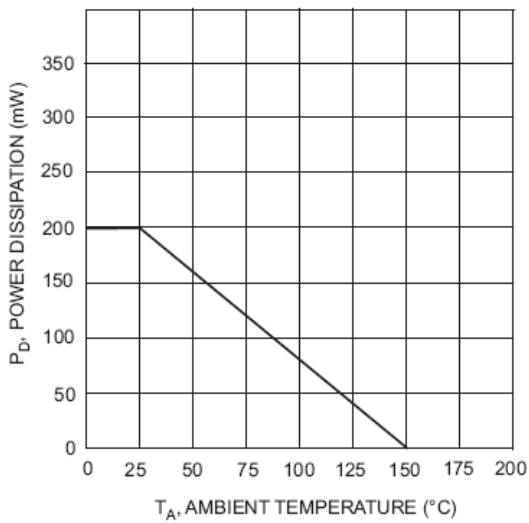


Fig. 1, Max Power Dissipation vs Ambient Temperature

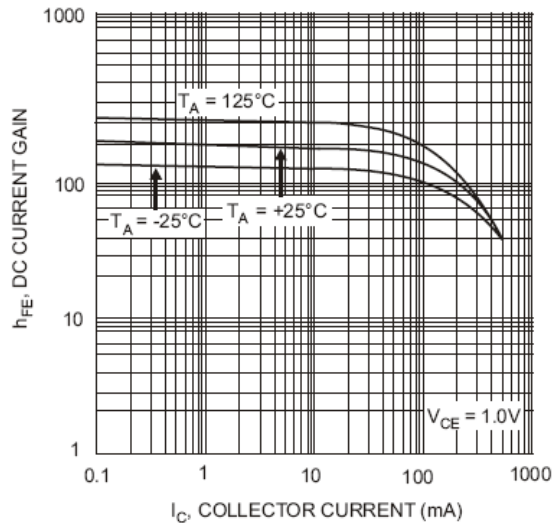


Fig. 2 Typical DC Current Gain vs Collector Current

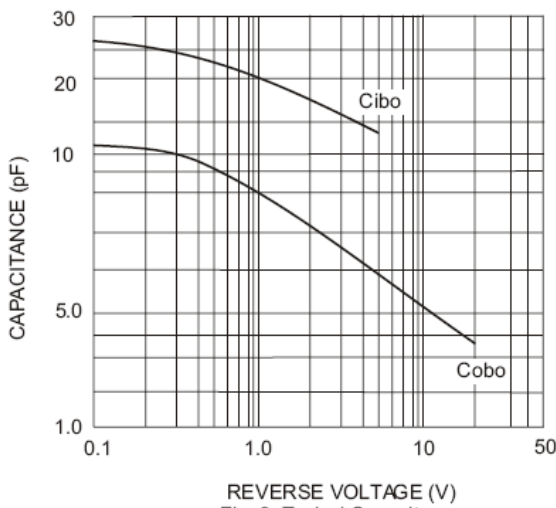


Fig. 3 Typical Capacitance

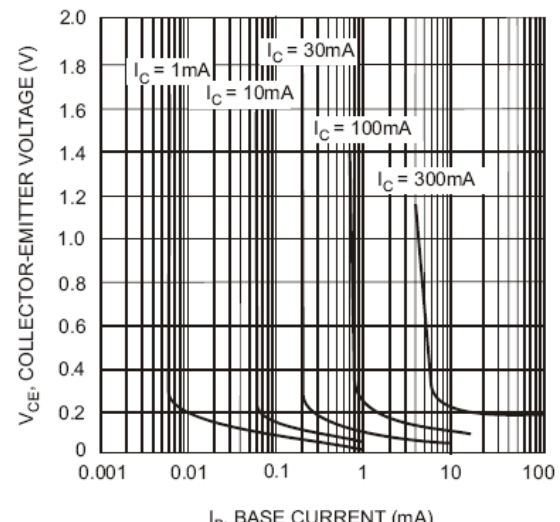


Fig. 4 Typical Collector Saturation Region

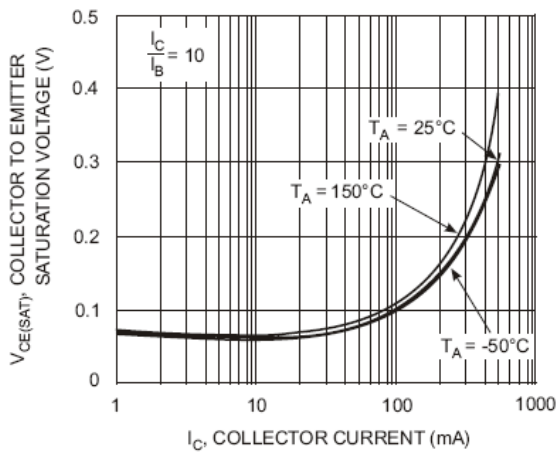


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

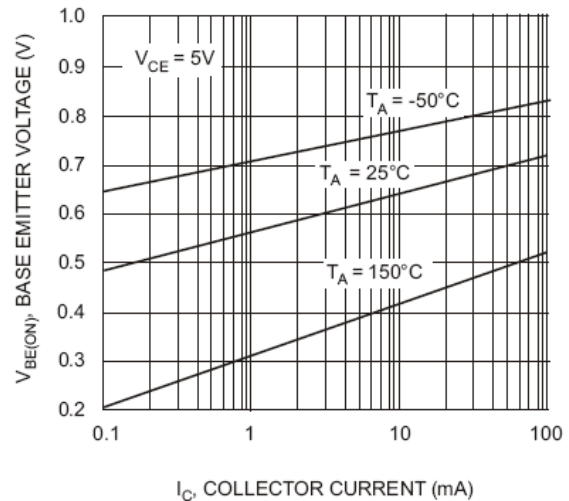


Fig. 6 Base Emitter Voltage vs. Collector Current

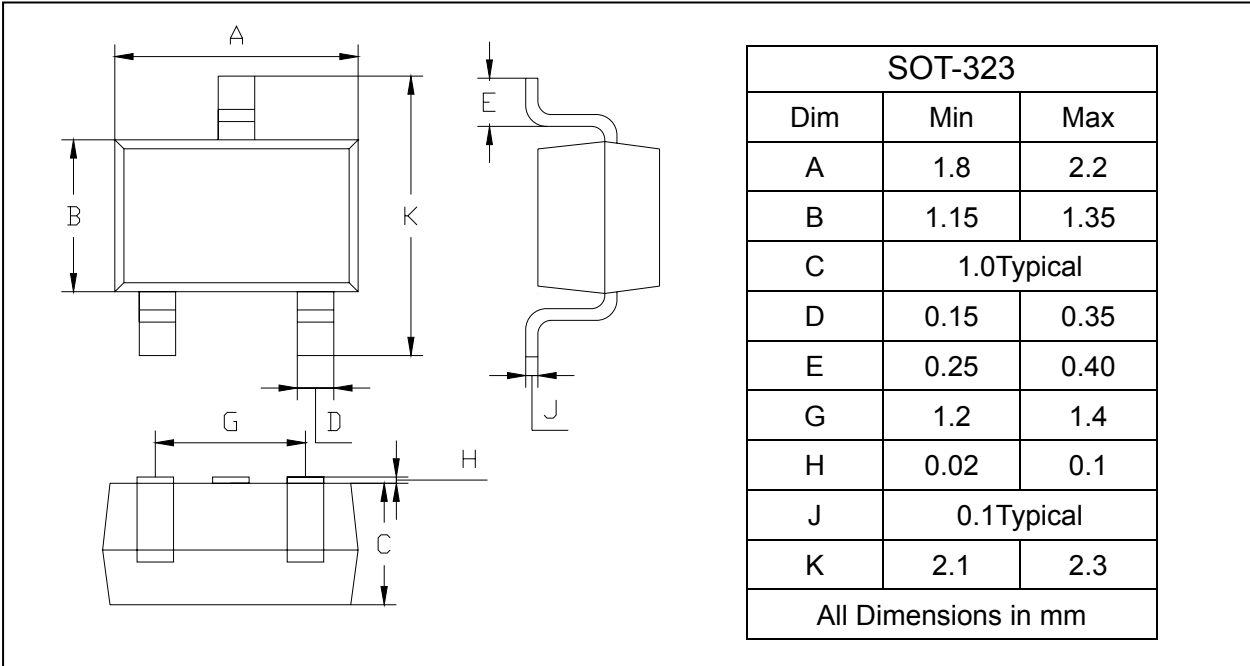
## NPN Silicon Epitaxial Planar Transistor

## MMST4401

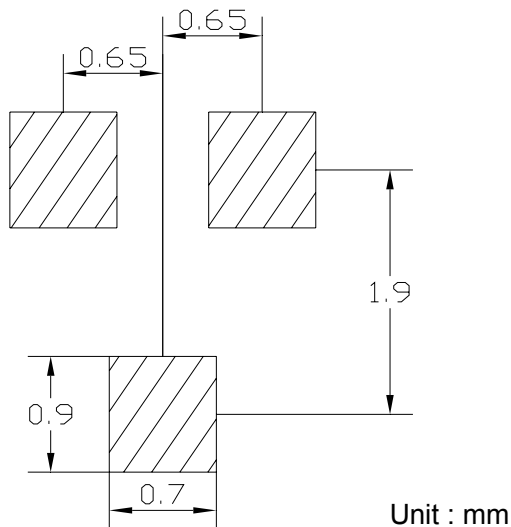
### PACKAGE OUTLINE

Plastic surface mounted package

SOT-323



### SOLDERING FOOTPRINT



### PACKAGE INFORMATION

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

[www.s-manuals.com](http://www.s-manuals.com)