

**FEATURES**

Epitaxial planar die construction.

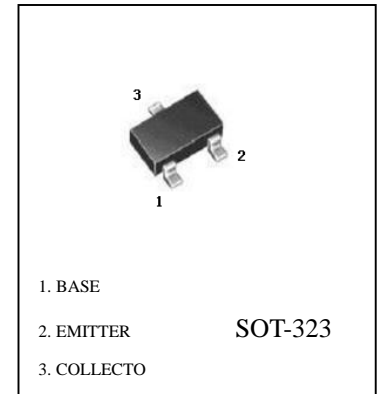
Complementary PNP type available(MMST4403).

Ultr-small surface mount package.

Marking:K3X

MAXIMUM RATINGS (TA=25°C unless otherwise noted)

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 -Continuous	$I_C$	600	mA
Collector Power Dissipation	$P_C$	200	mW
Storage Temperature	$T_{stg}$	-55 to +150	°C

**MMST4401 (NPN)**


ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{CBO}$	$I_C=100\mu A, I_E=0$	60		V
Collector-emitter breakdown voltage	$V_{CEO}$	$I_C=1mA, I_B=0$	40		V
Emitter-base breakdown voltage	$V_{EBO}$	$I_E=100\mu A, I_C=0$	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	$h_{FE}$	$V_{CE}=1V, I_C=0.1mA$ $V_{CE}=1V, I_C=1.0mA$ $V_{CE}=1V, I_C=10mA$ $V_{CE}=1V, I_C=150mA$ $V_{CE}=2V, I_C=500mA$	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

**MMST4401** Typical Characteristics

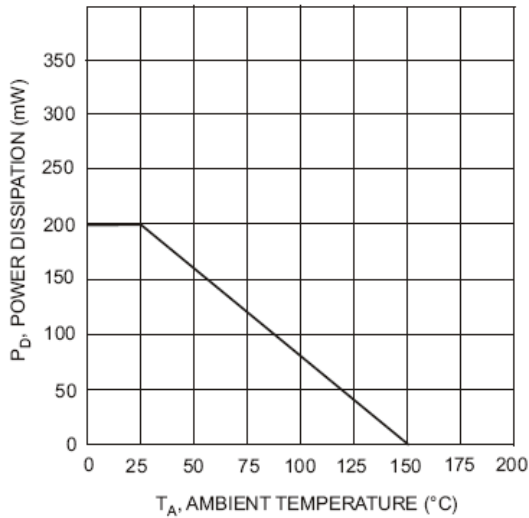


Fig. 1, Max Power Dissipation vs Ambient Temperature

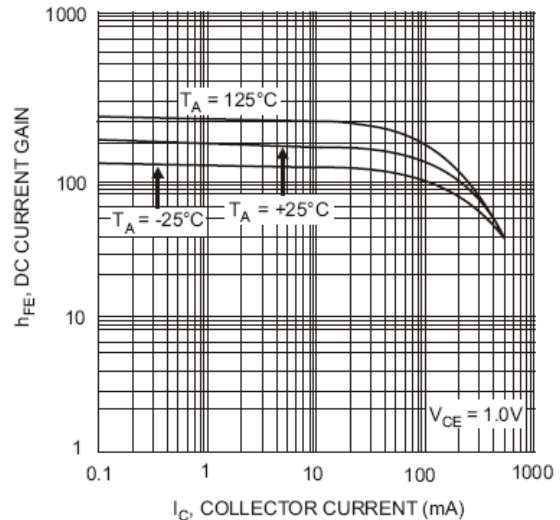


Fig. 2 Typical DC Current Gain vs Collector Current

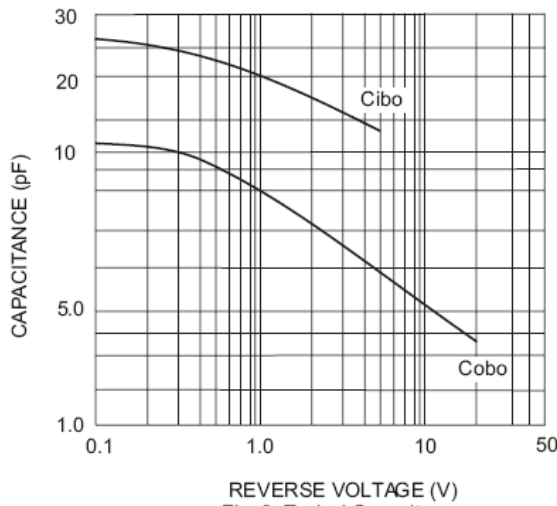


Fig. 3 Typical Capacitance

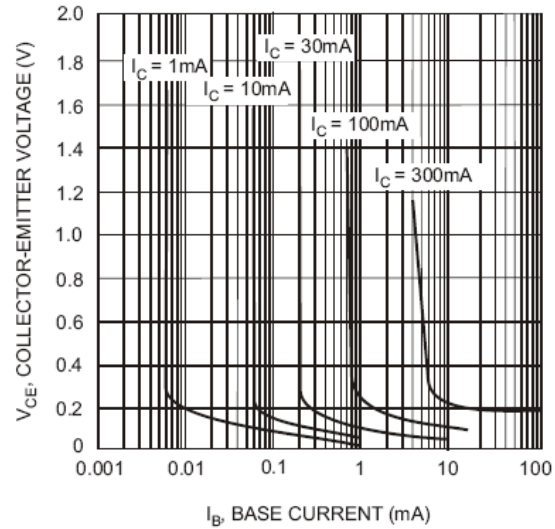


Fig. 4 Typical Collector Saturation Region

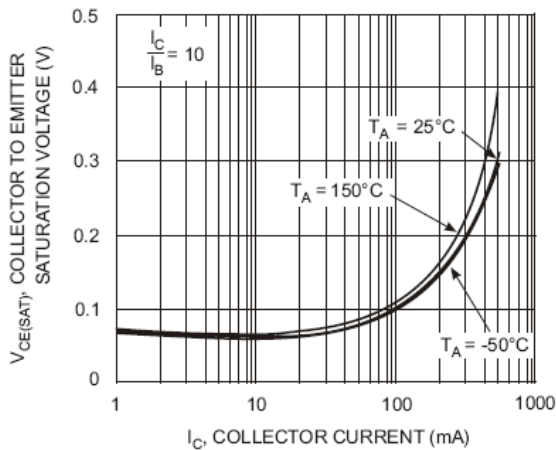


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

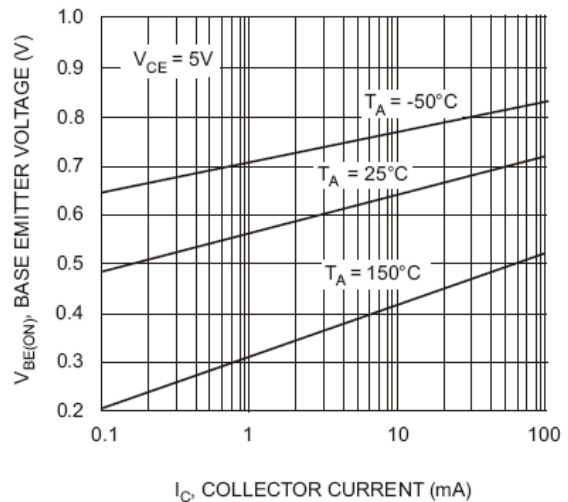


Fig. 6 Base Emitter Voltage vs. Collector Current