

FEATURES

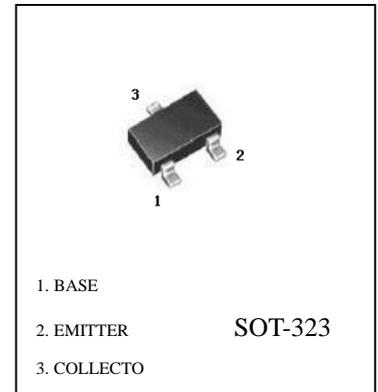
- Epitaxial planar die construction.
- Complementary PNP type available(MMST4403).
- Ultrar-small surface mount package.

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

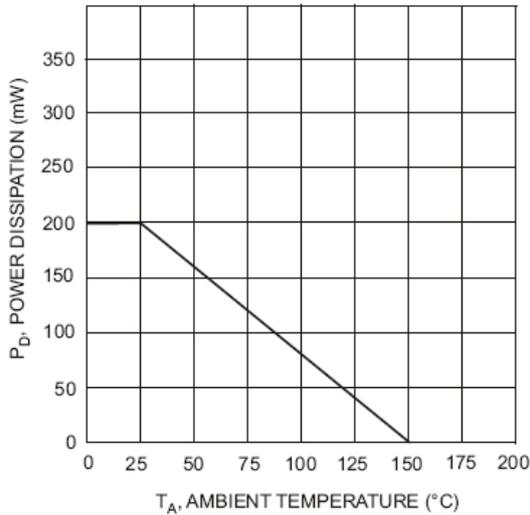
MMST4401 (NPN)



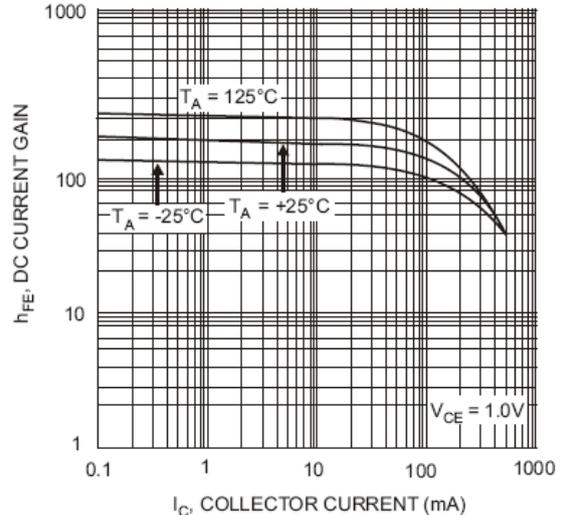
ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

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	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

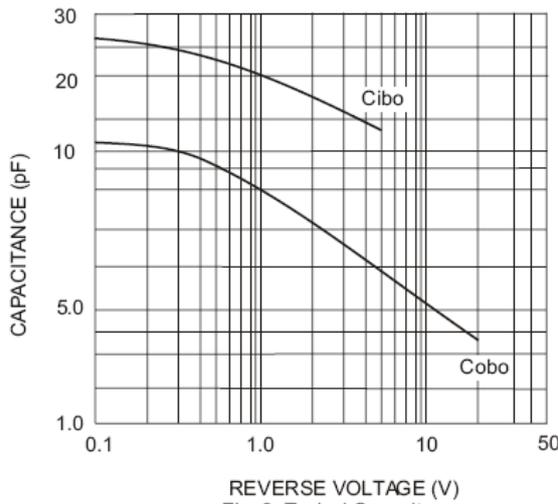
MMST4401 Typical Characteristics



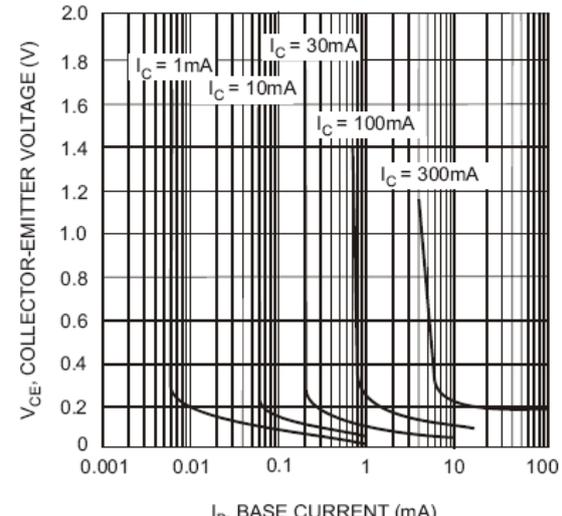
T_A , AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs Ambient Temperature



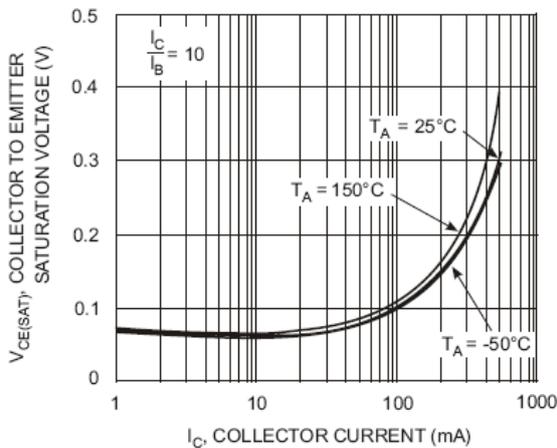
I_C , COLLECTOR CURRENT (mA)
Fig. 2 Typical DC Current Gain vs Collector Current



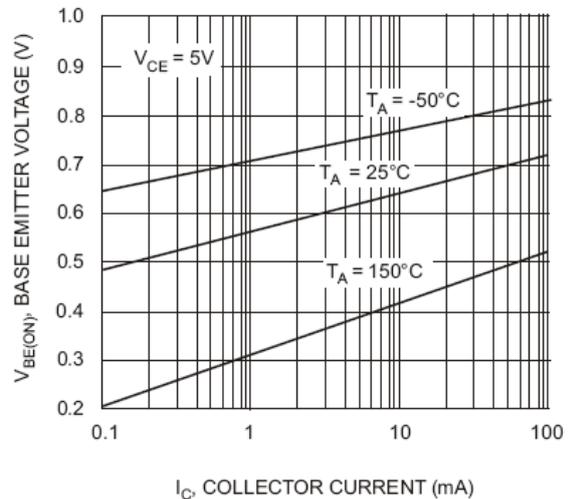
REVERSE VOLTAGE (V)
Fig. 3 Typical Capacitance



I_B , BASE CURRENT (mA)
Fig. 4 Typical Collector Saturation Region



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



I_C , COLLECTOR CURRENT (mA)
Fig. 6 Base Emitter Voltage vs. Collector Current