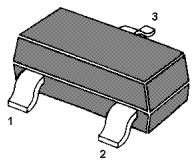
TIGER ELECTRONIC CO.,LTD

MMBT2222ALT1 *TRANSISTOR (NPN)*

RoHS COMPLIANT



1. BASE
2. EMITTER
3. COLLECTOR

MARKING: 1P

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

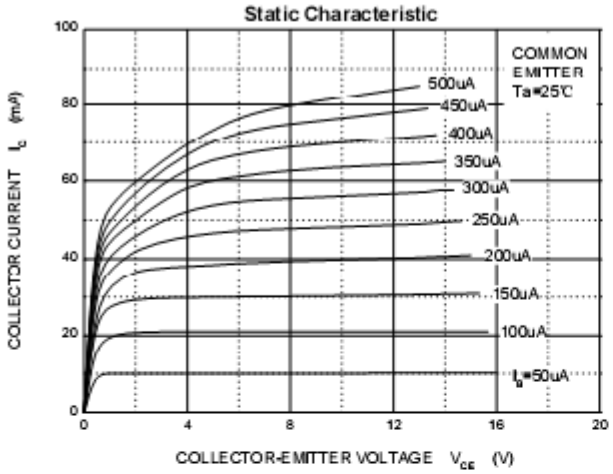
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	200	mA
P_C	Total Device Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance From Junction to Ambient	625	℃/W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55 ~ +150	℃

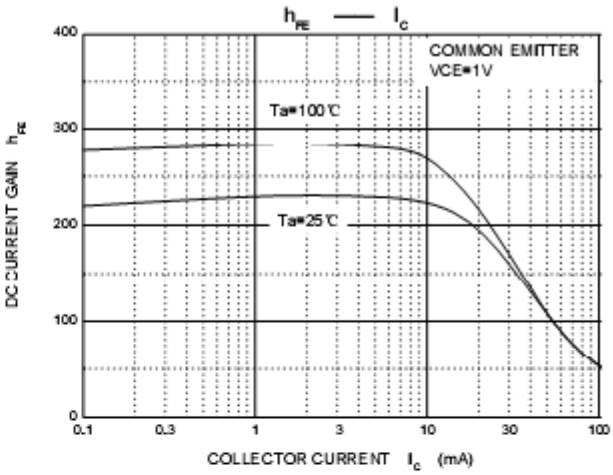
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

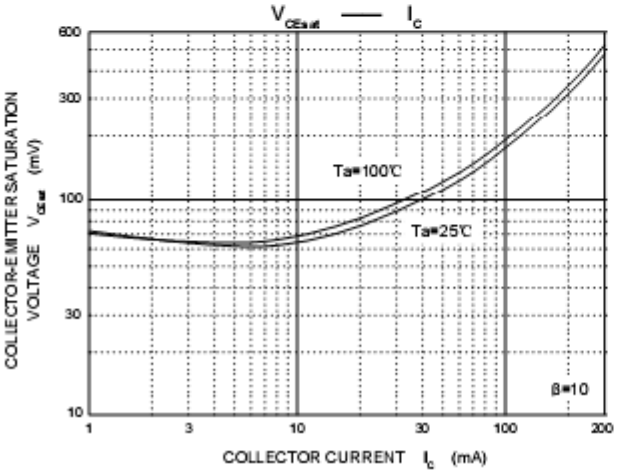
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 10μA, I_E=0	60		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 1mA, I_B=0	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	6		V
Collector cut-off current	I_{CBO}	V_{CB}=60V, I_E=0		0.1	μA
Collector cut-off current	I_{CEX}	V_{CE}=30V, $V_{BE(off)}$=3V		50	nA
Emitter cut-off current	I_{EBO}	V_{EB}=5V, I_C=0		0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=1V, I_C=10mA	100	300	
	$h_{FE(2)}$	V_{CE}=1V, I_C= 50mA	60		
	$h_{FE(3)}$	V_{CE}=1V, I_C= 100mA	30		
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=50mA, I_B= 5mA		0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C= 50mA, I_B= 5mA		0.95	V
Transition frequency	f_T	V_{CE}=20V, I_C=10mA, f=100MHz	300		MHz
Delay Time	t_d	V_{CC}=3V, V_{BE}=-0.5V		35	nS
Rise Time	t_r	I_C=10mA, I_{B1}=-I_{B2}=1.0mA		35	nS
Storage Time	t_s	V_{CC}=3V, I_C=10mA,		200	nS
Fall Time	t_f	I_{B1}=-I_{B2}=1mA		50	nS

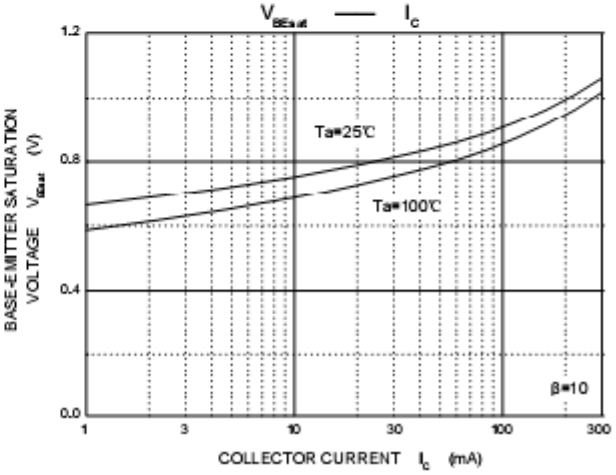
Download from alldatasheet.com

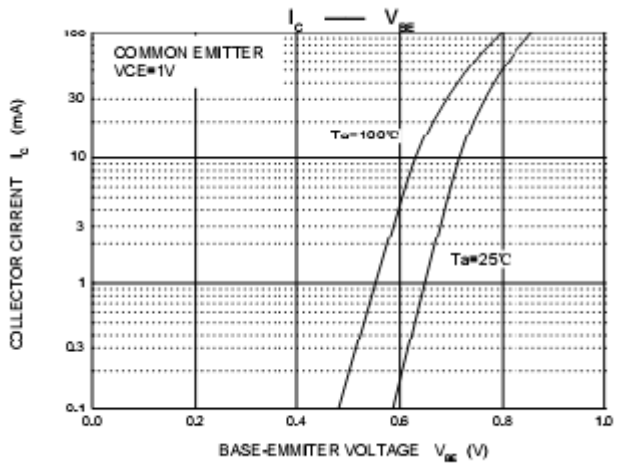
Typical Characteristics

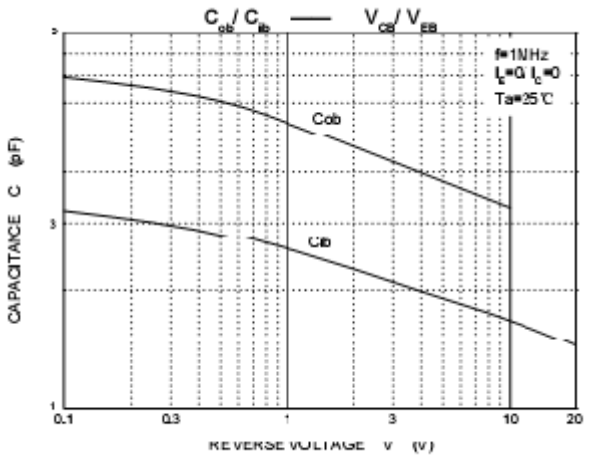




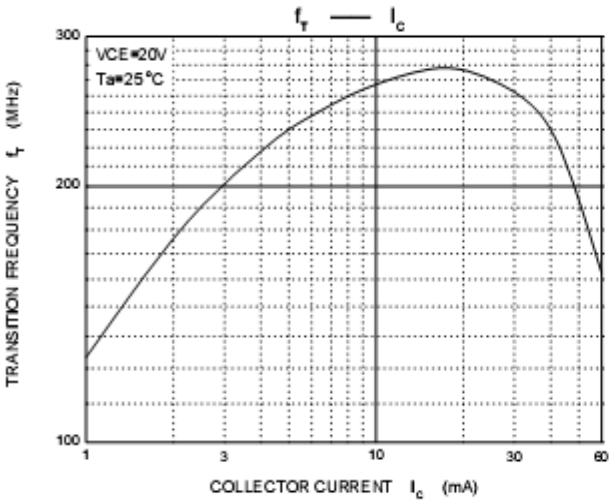


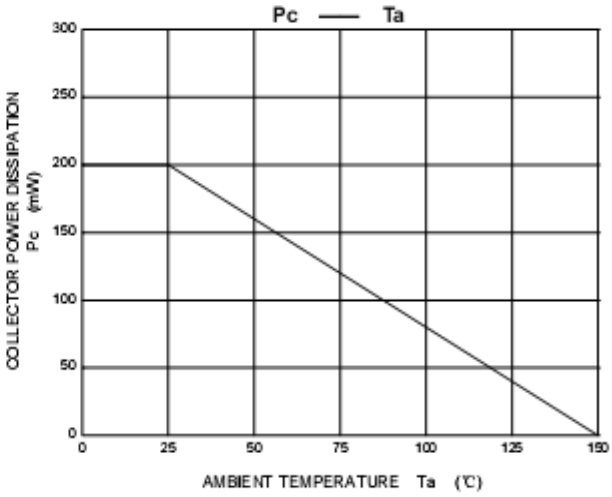






Download from alldatasheet.com

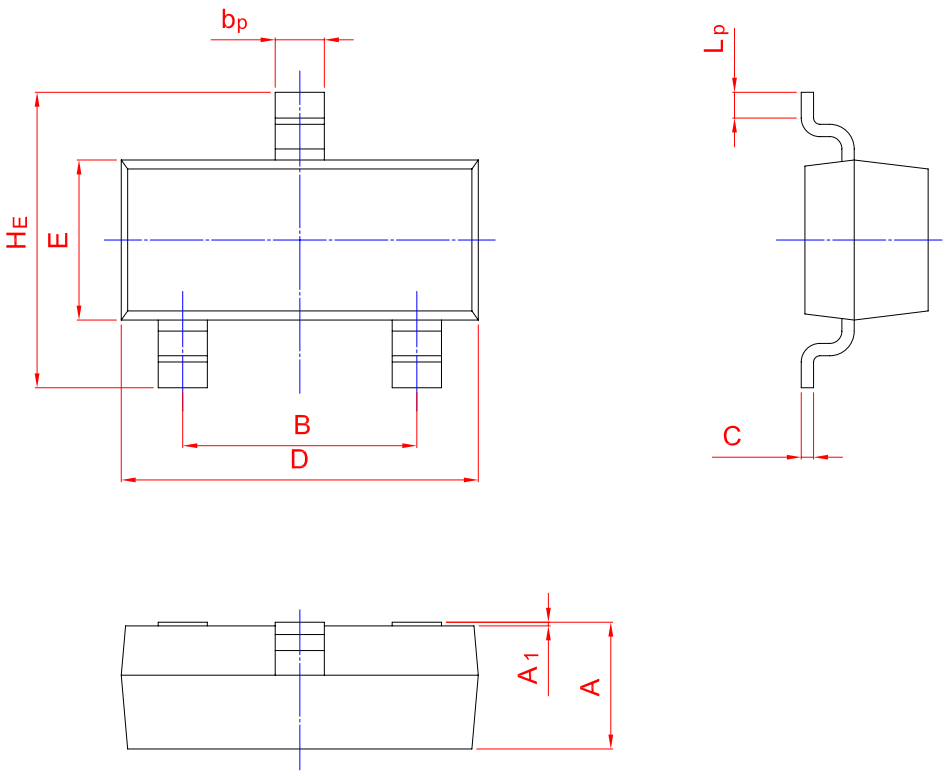




Download from alldatasheet.com

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-23**



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20

Download from alldatasheet.com