

MMBT2222AT TRANSISTOR (NPN)

FEATURES

Power dissipation

P_{CM} : 0.15 W ($T_{amb}=25^{\circ}C$)

Collector current

I_{CM} : 0.6 A

Collector-base voltage

$V_{(BR)CBO}$: 75 V

Operating and storage junction temperature range

T_J, T_{stg} : $-55^{\circ}C$ to $+150^{\circ}C$

SOT-523

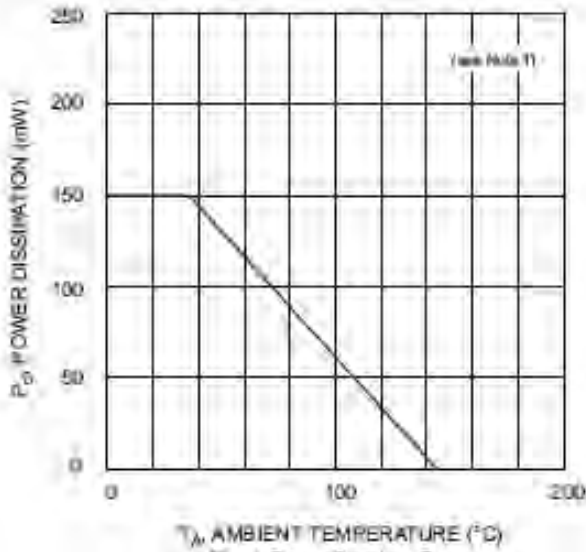
1. BASE
2. EMITTER
3. COLLECTOR



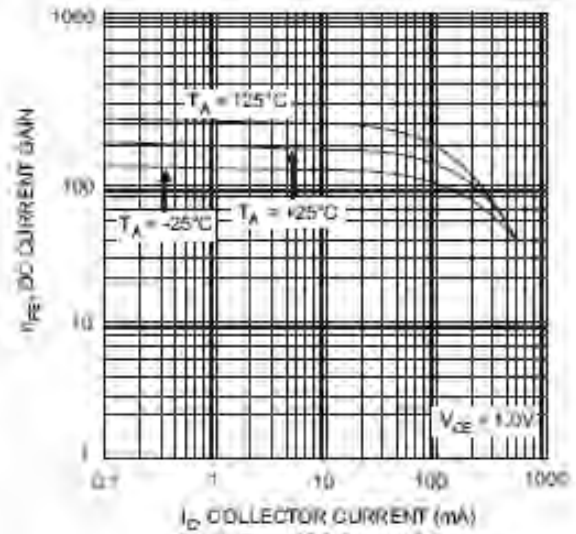
ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	75		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6		V
Collector cut-off current	I_{CBO}	$V_{CB}=70V, I_E=0$		0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE}=35V, I_B=0$		0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=3V, I_C=0$		0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=10V, I_C=0.1mA$	35		
	$h_{FE(2)}$	$V_{CE}=10V, I_C=1mA$	50		
	$h_{FE(3)}$	$V_{CE}=10V, I_C=10mA$	75		
	$h_{FE(4)}$	$V_{CE}=10V, I_C=150mA$	100		
	$h_{FE(5)}$	$V_{CE}=10V, I_C=500mA$	40		
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=150mA, I_B=15mA$		0.3	V
	$V_{CE(sat)2}$	$I_C=500mA, I_B=50mA$		1	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=150mA, I_B=15mA$		1.2	V
	$V_{BE(sat)2}$	$I_C=500mA, I_B=50mA$		2	V
Transition frequency	f_T	$V_{CE}=20V, I_C=20mA$ $f=100MHz$	300		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, I_E=0$ $f=1MHz$		8	pF
Delay time	t_d	$V_{CC}=30V, I_C=150mA$ $V_{BE(off)}=0.5V, I_{B1}=15mA$		10	nS
Rise time	t_r			25	nS
Storage time	t_s	$V_{CC}=30V, I_C=150mA$ $I_{B1}=I_{B2}=15mA$		225	nS
Fall time	t_f			60	nS

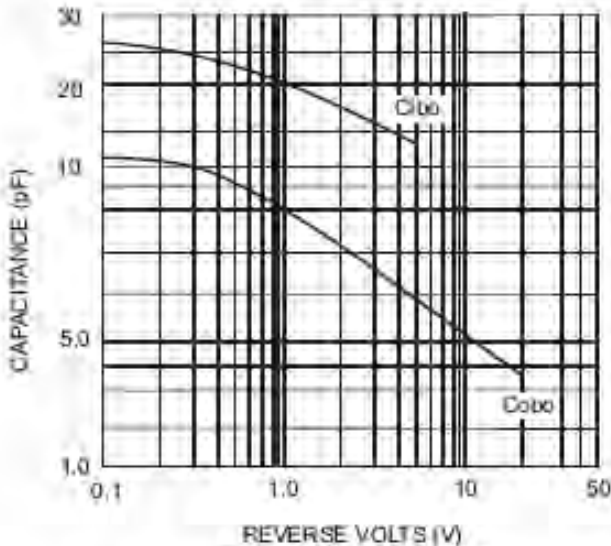
Marking :1P



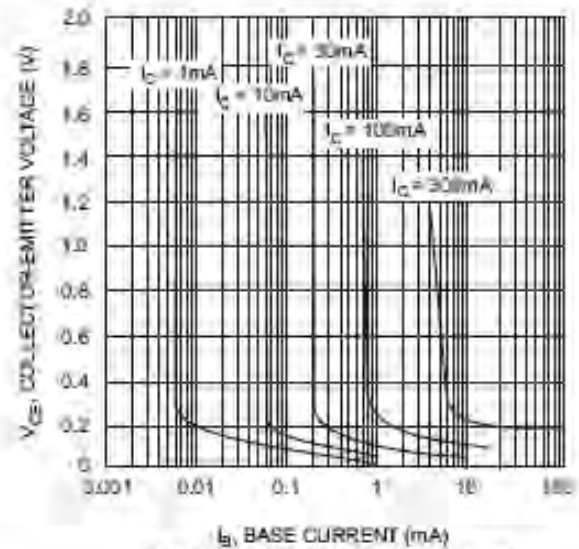
T_A AMBIENT TEMPERATURE ($^{\circ}$ C)
Fig. 1. Power-Derating Curve



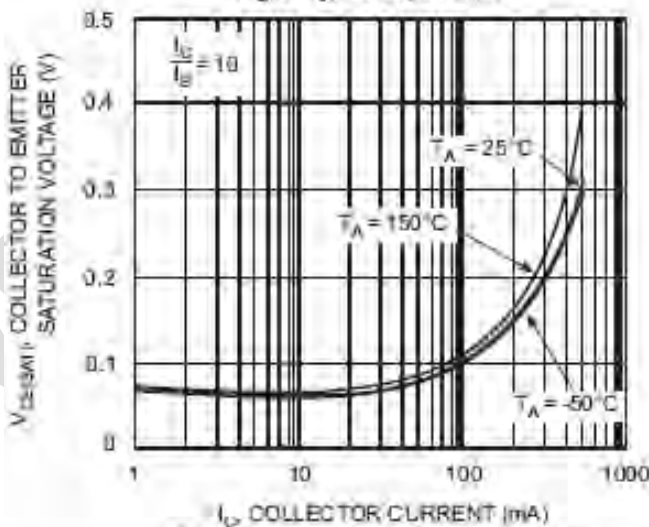
I_C COLLECTOR CURRENT (mA)
Fig. 2. Typical DC Current Gain vs. Collector Current



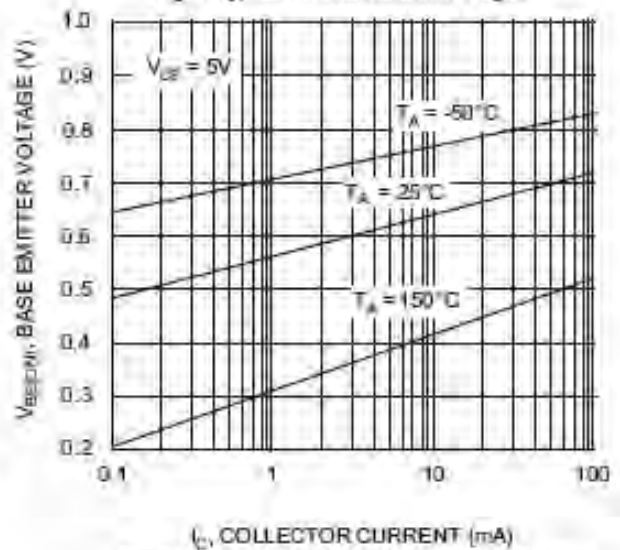
REVERSE VOLTS (V)
Fig. 3. Typical Capacitance



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