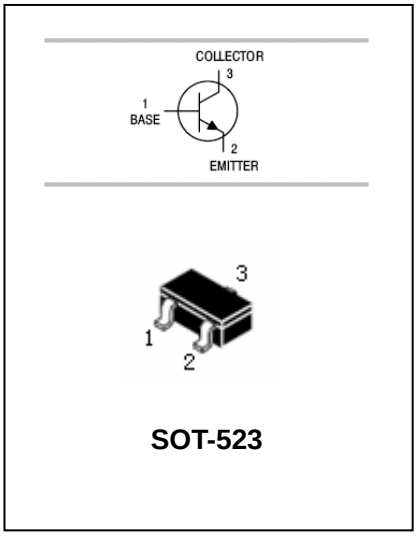
NPN SWITCHING TRANSISTOR MMBT2222AT

FEATURES

Lead-free

- Epitaxial planar die construction.
- Complementary PNP type available (MMBT2907AT).
- Collector Current Capability I_c=600mA.
- Ultra-small surface mount package.



SOT-523

APPLICATIONS

- General switching and amplification

ORDERING INFORMATION

Type No.	Marking	Package Code
MMBT2222AT	1P	SOT-523

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

SYMBOL	PARAMETER	MMBT3904T	UNIT
V_{CBO}	collector-base voltage	75	V
V_{CEO}	collector-emitter voltage	40	V
V_{EBO}	emitter-base voltage	6	V
I_C	collector current (DC)	600	mA
P_d	Power dissipation	150	mW
$R_{\theta JA}$	Thermal resistance, junction to Ambient	833	°C/W
T_{stg}	storage temperature range	-55 to +150	°C
T_j	junction temperature	150	°C

NPN SWITCHING TRANSISTOR MMBT2222AT

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	Collector-base breakown voltage	I_C=10μA,I_E=0	75		
$V_{(BR)CEO}$	Collector- emitter breakown voltage	I_C=10mA,I_B=0	40		
$V_{(BR)BEO}$	Emitter-base breakown voltage	I_E=10μA,I_C=0	6		
I_{CEX}	collector cut-off current	V_{CE}=60V,$V_{EB(OFF)}$=3.0V		50	nA
I_{BL}	Base cut-off current	V_{CE}=60V, $V_{EB(OFF)}$=3.0V		50	nA
h_{FE}	DC current gain	V_{CE}=10V,I_C=0.1mA V_{CE}=10V,I_C=1mA V_{CE}=10V,I_C=10mA V_{CE}=10V,I_C=150mA V_{CE}=10V,I_C=500mA	35 50 75 100 40		
$V_{CE(sat)}$	collector-emitter saturation voltage	I_C=150mA; I_B=15mA		0.3	V
		I_C=500mA; I_B=50mA		1	V
$V_{BE(sat)}$	base-emitter saturation voltage	I_C=150mA; I_B=15mA		1.2	V
		I_C=500mA; I_B=50mA		2.0	V
C_{obo}	Output capacitance	I_E=0,V_{CB}=10V,f=1MHz		8	pF
C_{ibo}	Input capacitance	I_C=0,V_{BE}=0.5V,f=1MHz		30	pF
f_T	transition frequency	I_C=20mA,V_{CE} =20V,f=100MHz	300		MHz
NF	noise figure	I_C=100μA,V_{CE} =10V, R_S =1kΩ;f =1.0MHz		4	dB
t_d	delay time	I_C=150mA,I_{B1}=15mA,$V_{BE(off)}$=-0.5V V_{CC}=30V	-	10	ns
t_r	rise time		-	25	ns
t_s	storage time	V_{CC}=30V,I_C=150mA,I_{B1}=I_{B2}=15mA	-	225	ns
t_f	fall time		-	60	ns

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

NPN SWITCHING TRANSISTOR MMBT2222AT

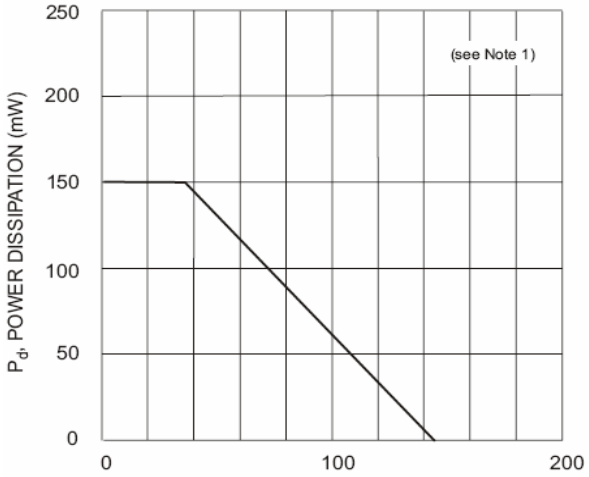


Fig. 1, Power Derating Curve

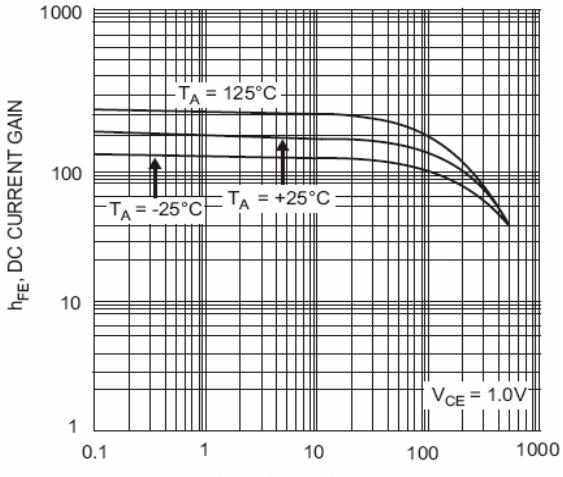


Fig. 2 Typical DC Current Gain vs Collector Current

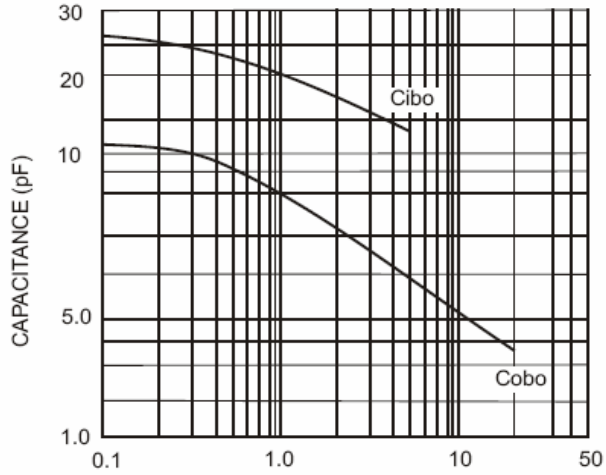


Fig. 3 Typical Capacitance

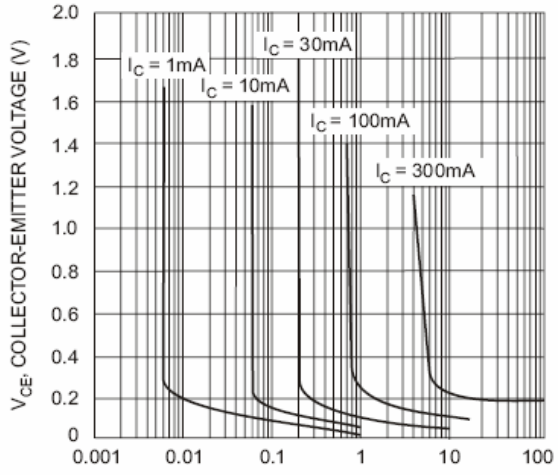


Fig. 4 Typical Collector Saturation Region

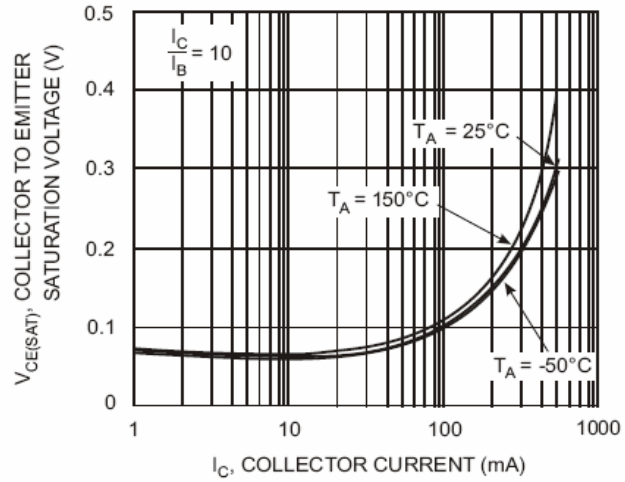


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

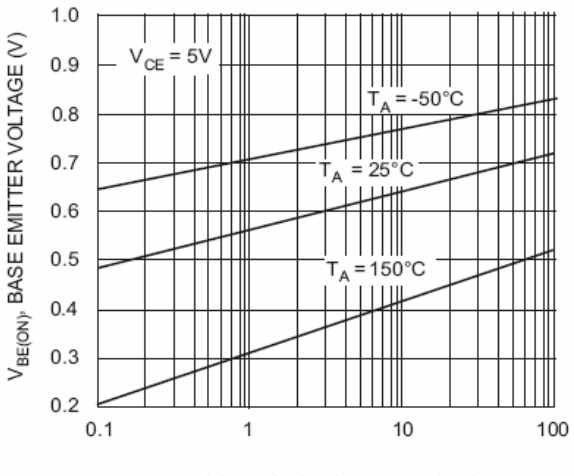
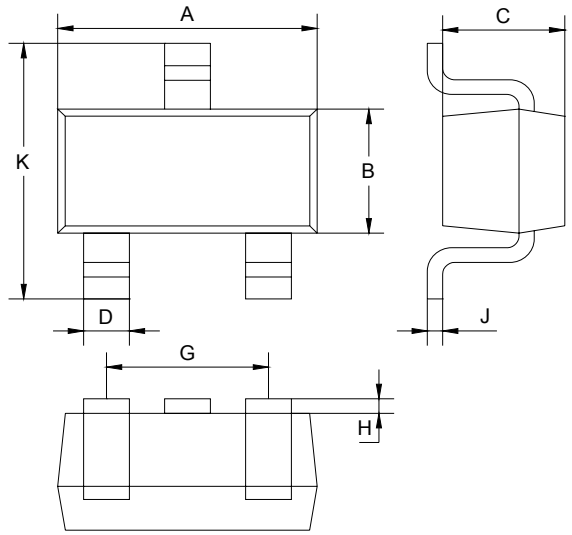


Fig. 6 Base Emitter Voltage vs. Collector Current

NPN SWITCHING TRANSISTOR MMBT2222AT

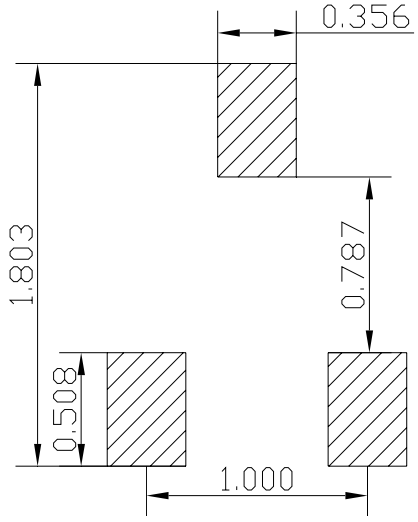
PACKAGE OUTLINE

Plastic surface mounted package SOT-523



SOT-523		
Dim	Min	Max
A	1.5	1.7
B	0.75	0.85
C	0.6	0.8
D	0.15	0.3
G	0.9	1.1
H	0.02	0.1
J	0.1Typical	
K	1.45	1.75
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
MMBT2222AT	SOT-523	3000/Tape&Reel