LITE-ON SEMICONDUCTORS

MMBT2222A

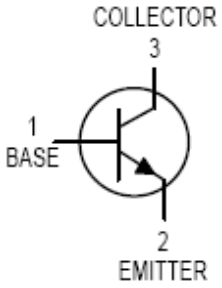
NPN General Purpose Transistor

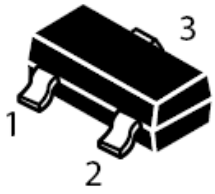
FEATURES

- Ideal for Medium Power Amplification and Switching
- Complementary PNP Type available(MMBT2907A)

MECHANICAL DATA

- Case: SOT-23 Plastic
- Case material: “Green” molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl)
- Lead Free in RoHS 2002/95/EC and Halogen Free Compliant





Maximum Ratings @ T_A = 25℃

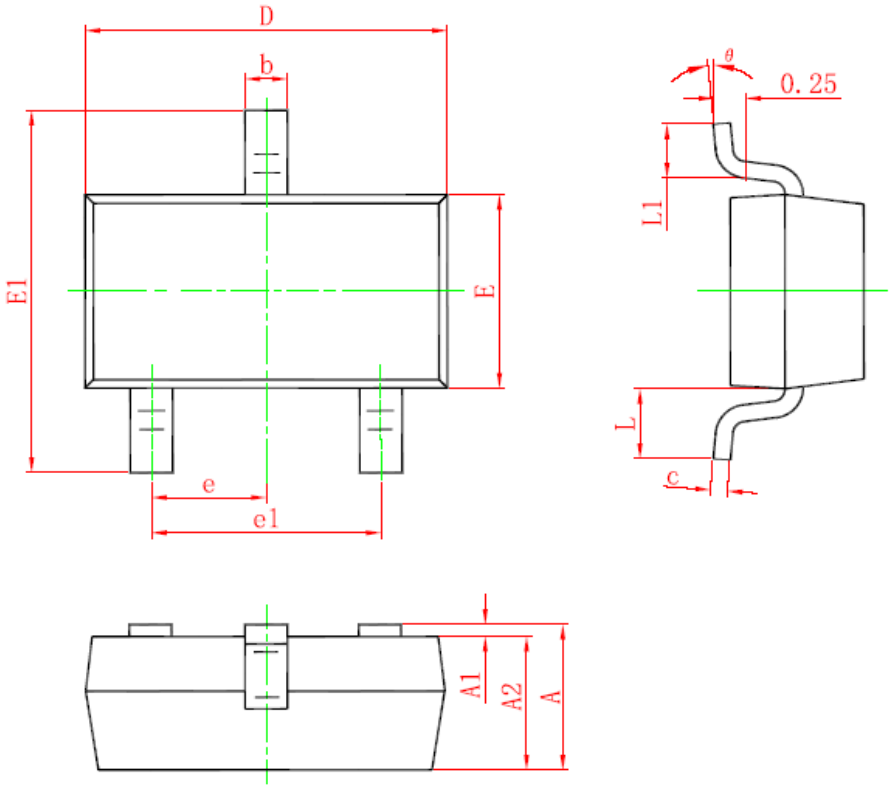
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current -Continuous	I_C	600	mA
Collector Power Dissipation	P_C	250	mW
Thermal Resistance, Junction to Ambient	$R_{\Theta JA}$	500	℃/W
Junction Temperature	T_J	-55~+150	℃
Storage Temperature Range	T_{STG}	-55~+150	℃

Electrical Characteristics @ T_A = 25℃ unless otherwise specified

Characteristic	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	I_C=10μA,I_E=0	V_{CBO}	75			V
Collector-emitter breakdown voltage	I_C=10mA,I_B=0	V_{CEO}	40			V
Emitter-base breakdown voltage	I_E=10μA,I_C=0	V_{EBO}	6			V
Collector-base cut-off current	V_{CB}=60V,I_E=0	I_{CBO}			0.01	uA
Collector-emitter cut-off current	V_{CE}=30V,$V_{BE(off)}$=3V	I_{CEX}			0.01	uA
Emitter-base cut-off current	V_{EB}=3V,I_C=0	I_{EBO}			0.1	uA
DC current gain	V_{CE}=10V,I_C=150mA	h_{FE1}	100		300	
	V_{CE}=10V,I_C=0.1mA	h_{FE2}	40			
	V_{CE}=10V,I_C=500mA	h_{FE3}	42			
Collector-emitter saturation voltage	I_C=500mA,I_B=50mA	V_{CE}(sat)1			1	V
	I_C=150mA,I_B=15mA	V_{CE}(sat)2			0.3	V
Base-emitter saturation voltage	I_C=500mA,I_B=50mA	V_{BE}(sat)1			2	V
	I_C=150mA,I_B=15mA	V_{BE}(sat)2			1.2	V
Transition frequency	V_{CE}=2V,I_C=20mA, f=100MHz	f_T	300			MHz
Delay time	V_{CC}=30V, $V_{BE(off)}$=-0.5V I_C=150mA , I_{B1}= 15mA	T_d			10	nS
Rise time		T_r			25	nS
Storage time	V_{CC}=30V, I_C=150mA I_{B1}=-I_{B2}=15mA	T_s			225	nS
Fall time		T_f			60	nS

REV. 5, Jun-2019, KSNR10

SOT-23 Outline Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°

Device Marking :

Device P/N	Marking code
MMBT2222A	1P

Electrical characteristic curves

Fig.1 DC Current Gain vs. Collector Current

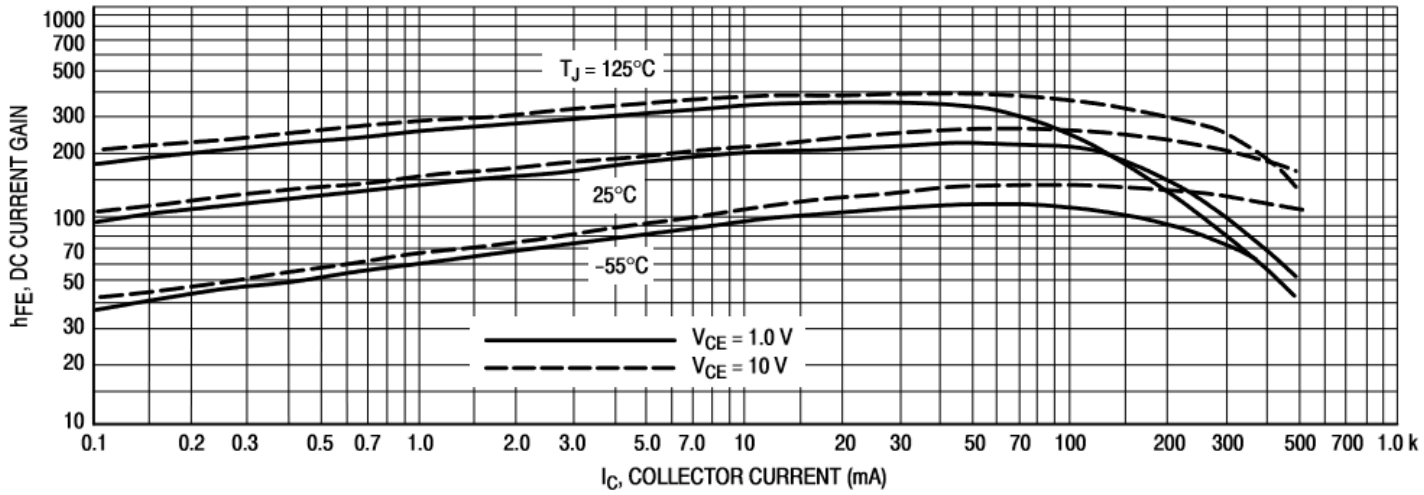
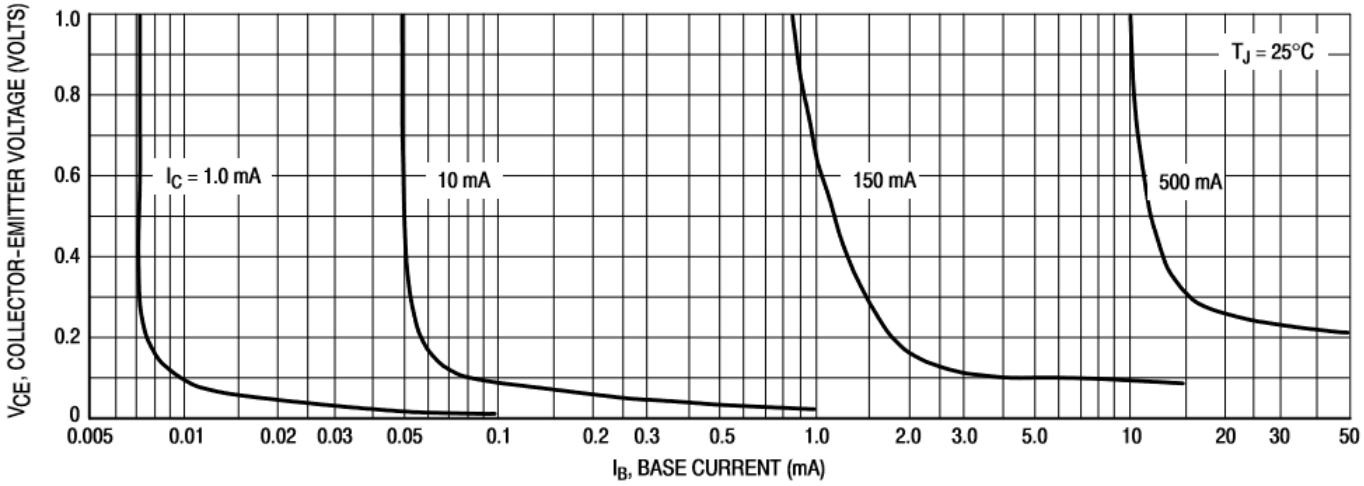


Fig.2 Collector Saturation Region



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