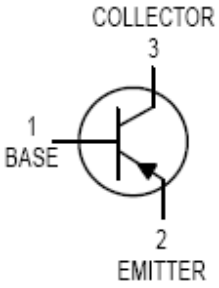
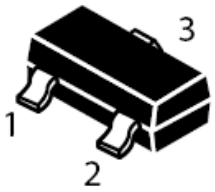
LITE-ON SEMICONDUCTORS

MMBT3906

PNP General Purpose Transistor





FEATURES

- For switching and amplifier applications.
- Complementary NPN Type Available (MMBT3904)

MECHANICAL DATA

- Case: SOT-23 Plastic
- Case material: “Green” molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl)
- Lead Free in RoHS 2011/65/EU Compliant

Maximum Ratings @ T_A = 25℃

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current -Continuous	I_C	-200	mA
Collector Power Dissipation	P_C	200	mW
Thermal Resistance, Junction to Ambient	$R_{\Theta JA}$	556 (1) 417 (2)	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{STG}	-55~+150	℃

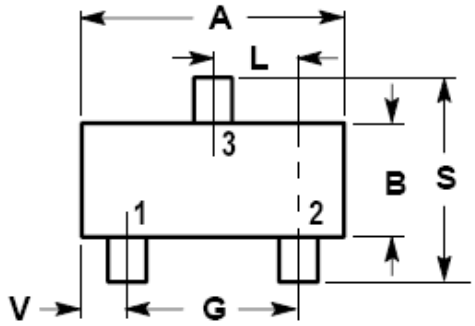
Electrical Characteristics @ T_A = 25℃ unless otherwise specified

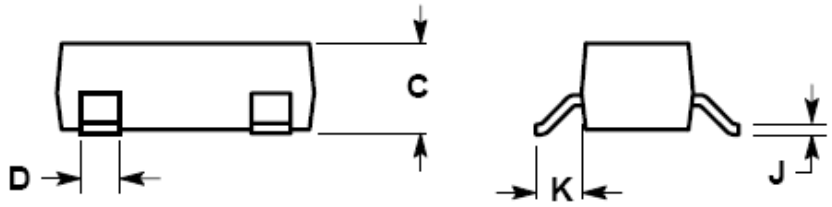
Characteristic	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	I_C=-10μA,I_E=0	V_{CBO}	-40			V
Collector-emitter breakdown voltage	I_C=-1mA,I_B=0	V_{CEO}	-40			V
Emitter-base breakdown voltage	I_E=-10μA,I_C=0	V_{EBO}	-5			V
Collector-base cut-off current	V_{CB}=-40V,I_E=0	I_{CBO}			-0.1	uA
Collector-base cut-off current	V_{CE}=-30V,$V_{BE(off)}$=-3V	I_{CEX}			-50	nA
Emitter-base cut-off current	V_{EB}=-5V,I_C=0	I_{EBO}			-0.1	uA
DC current gain	V_{CE}=-1V,I_C=-10mA	h_{FE1}	100		300	
	V_{CE}=-1V,I_C=-50mA	h_{FE2}	60			
	V_{CE}=-1V,I_C=-100mA	h_{FE3}	30			
Collector-emitter saturation voltage	I_C=-50mA,I_B=-5mA	V_{CE}(sat)			-0.4	V
Base-emitter saturation voltage	I_C=-50mA,I_B=-5mA	V_{BE}(sat)			-0.95	V
Transition frequency	V_{CE}=-20V,I_C=-10mA, f=100MHz	f_T	300			MHz
Delay time	V_{CC}=-3V, V_{BE}=-0.5V I_C=-10mA , I_{B1}=-I_{B2}=-1mA	T_d			35	nS
Rise time		T_r			35	nS
Storage time	V_{CC}=-3V, I_C=-10mA I_{B1}=-I_{B2}=-1mA	T_s			225	nS
Fall time		T_f			75	nS

REV. 5, Aiug-2014, KSPR12

Note:
(1) Device mounted on FR–5 board, 1.0 x 0.75 x 0.062 in.
(2) Device mounted on Alumina substrate, 0.4 x 0.3 x 0.024 in. 99.5% alumina.

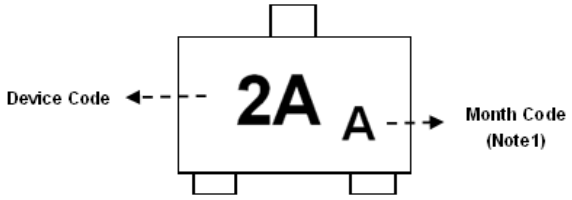
SOT-23 Outline Dimension





Symbol	Dimension In Millimeters	
	Min	Max.
A	2.80	3.04
B	1.20	1.40
C	0.89	1.11
D	0.37	0.50
G	1.78	2.04
J	0.085	0.177
K	0.35	0.69
L	0.89	1.02
S	2.10	2.64
V	0.45	0.60

Device Marking:

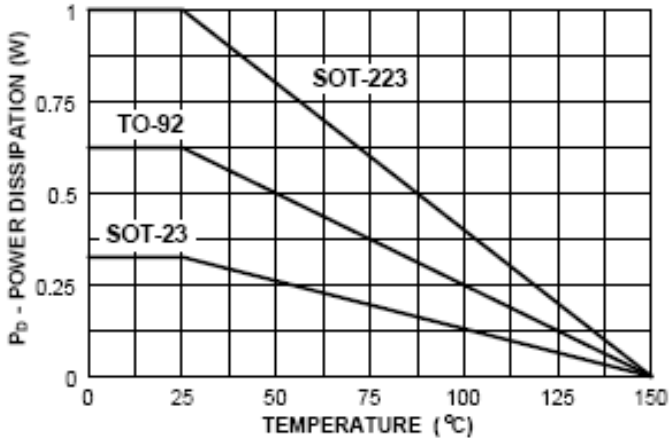


Note1:

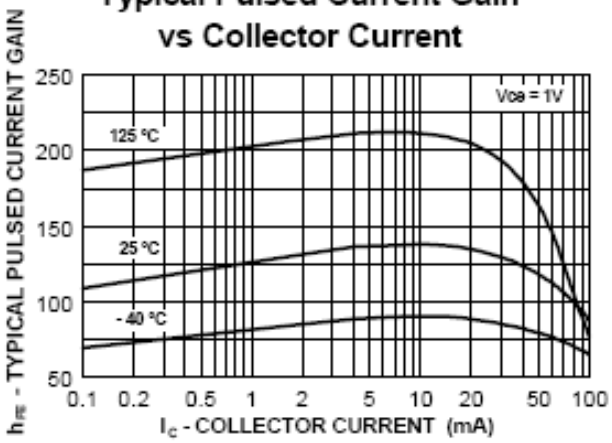
Odd Year	J	O	L	C	K	B	P	D	M	E	G	F
Even Year	W	N	Y	T	R	H	A	I	U	X	Z	S

Electrical characteristic curves

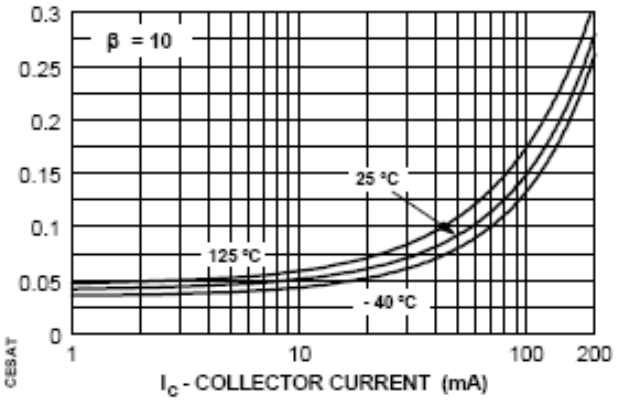
Power Dissipation vs Ambient Temperature



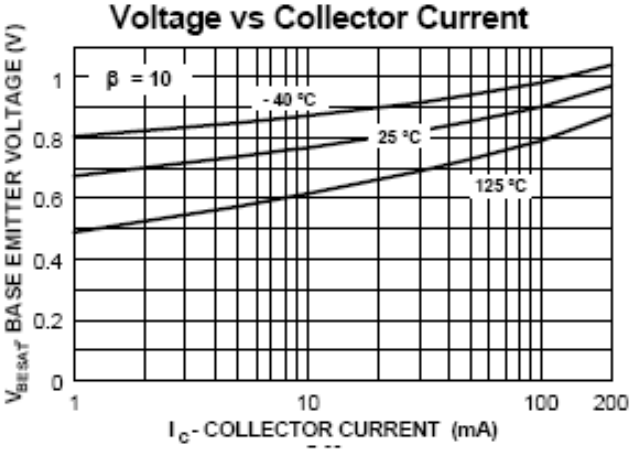
Typical Pulsed Current Gain vs Collector Current



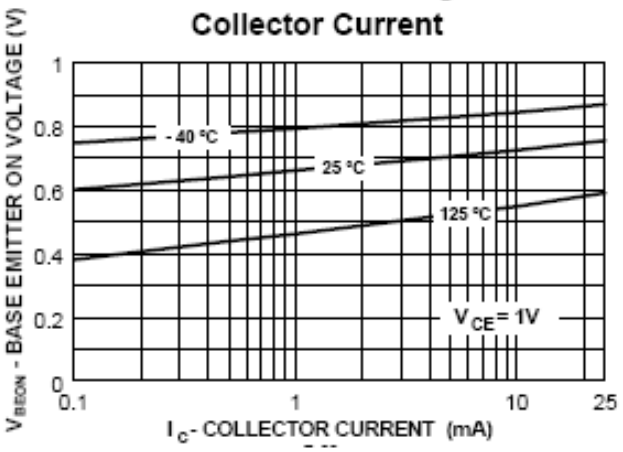
Collector-Emitter Saturation Voltage vs Collector Current



Base-Emitter Saturation Voltage vs Collector Current

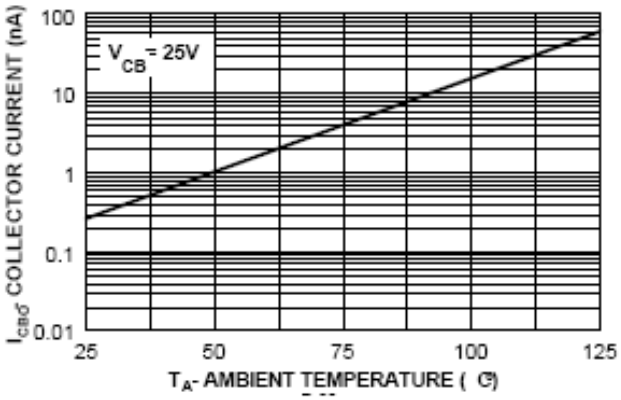


Base Emitter ON Voltage vs Collector Current

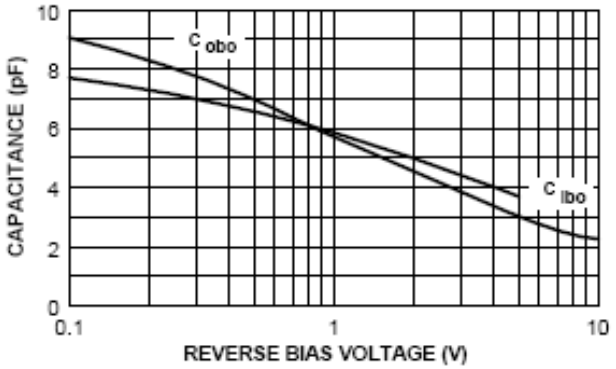


Electrical characteristic curves

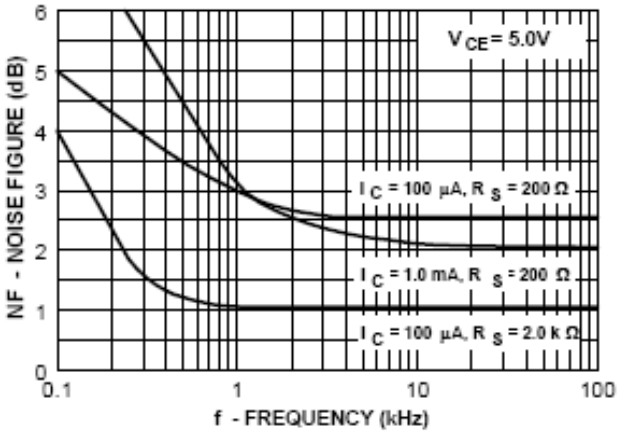
Collector-Cutoff Current vs. Ambient Temperature



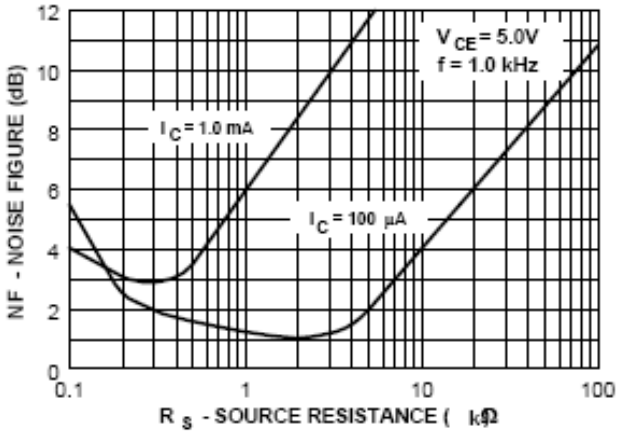
Common-Base Open Circuit Input and Output Capacitance vs Reverse Bias Voltage



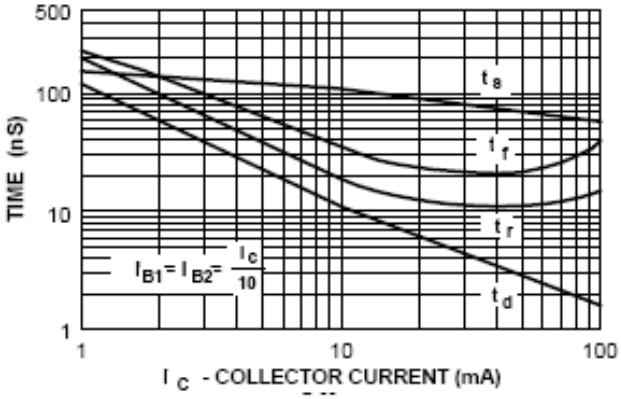
Noise Figure vs Frequency



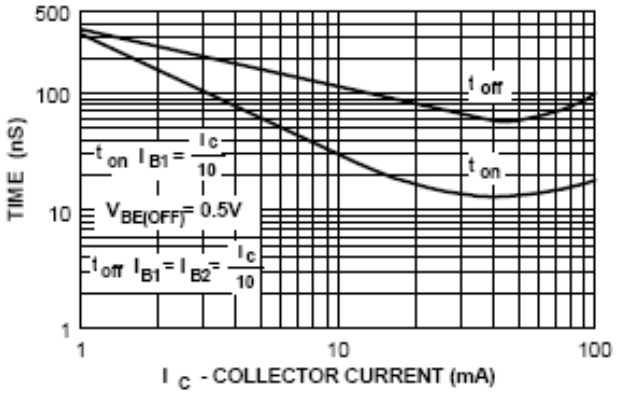
Noise Figure vs Source Resistance



Switching Times vs Collector Current



Turn On and Turn Off Times vs Collector Current



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