

General Description

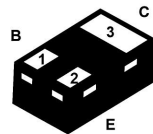
The MMBT3906LP combination of 40V/0.2A PNP low $V_{CE(sat)}$ Breakthrough In Small Signal (BISS) transistor. it is ideal for use in small power amplifiers and switch applications.

Specification Features

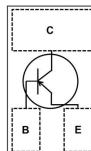
Supper high density cell design
High collector current capability: $I_C=0.2A$
igh energy efficiency due to less heat generation
High Power and current handing capability
Low $V_{CE(sat)}$: $-0.4V@I_C=-50mA, I_B=-5mA$

Application

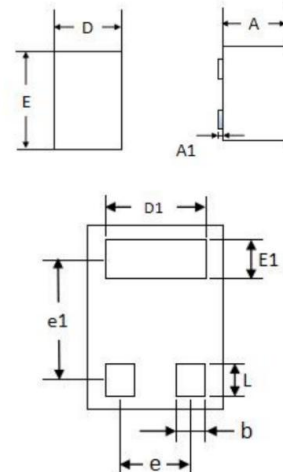
Charging circuits
Load Switching for portable device
Power management
PWM applications
Power switches (e.g. motors, fans)



DFN1006-3L(Pb-Free)



Schematic Diagram



DFN1006-3L

	Millimeters			Inches		
	Min. (mm)	Typ. (mm)	Max. (mm)	Min. (mm)	Typ. (mm)	Max. (mm)
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	-	0.05	0.000	-	0.002
D	0.55	0.60	0.65	0.022	0.024	0.026
E	0.95	1.00	1.05	0.037	0.039	0.041
D1	0.45	0.50	0.55	0.018	0.020	0.022
E1	0.20	0.25	0.30	0.008	0.010	0.012
L	0.20	0.25	0.30	0.008	0.010	0.012
b	0.10	0.15	0.20	0.003	0.005	0.007
e	0.35BSC			0.013BSC		
e1	0.65BSC			0.026BSC		

Absolute Maximum Ratings($T_J = 25^\circ C$)

Rating	Symbol	Min.	Max.	Unit
Collector-base voltage	V_{CBO}		-40	V
Collector-emitter voltage	V_{CEO}		-40	V
Emitter-base voltage	V_{EBO}		-5	V
Collector current (DC)	I_C		-200	mA
Collector Power Dissipation	P_C		100	mW
Storage Temperature Range	T_J		+150	$^\circ C$
Junction Temperature Range	T_{STG}	-55	150	$^\circ C$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$		1250	$^\circ C/W$

Note :Repetitive Rating: Pulse width limited by maximum junction temperature

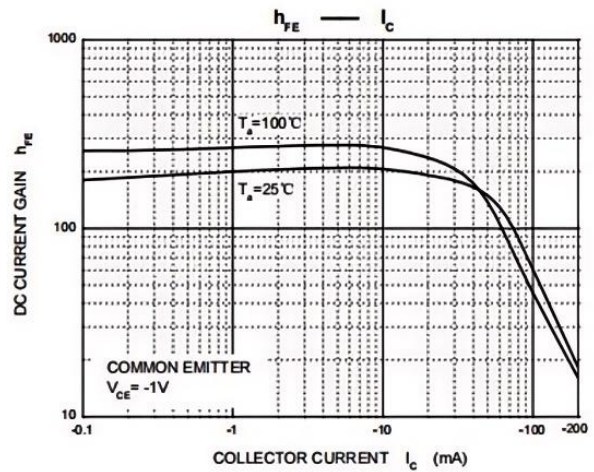
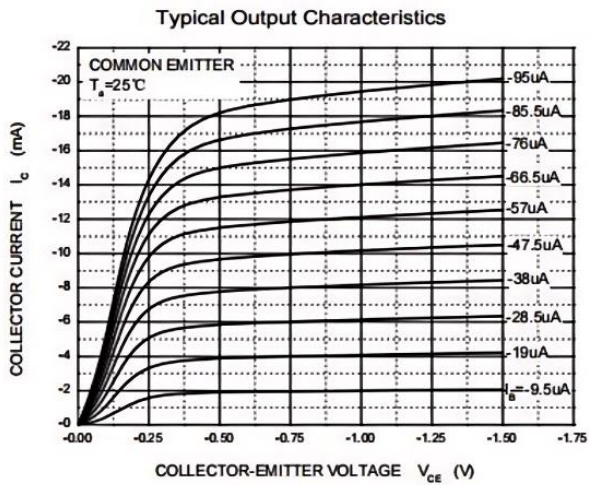
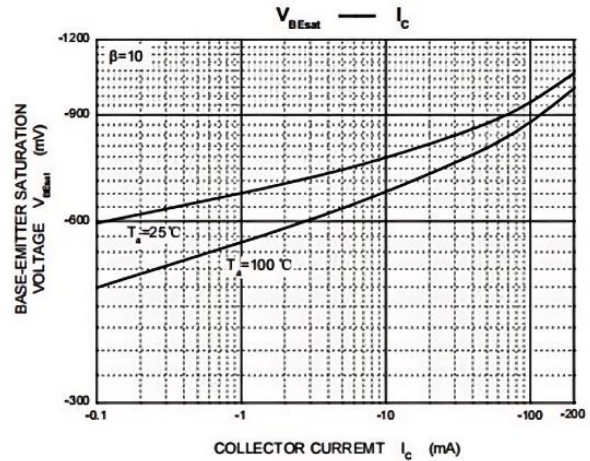
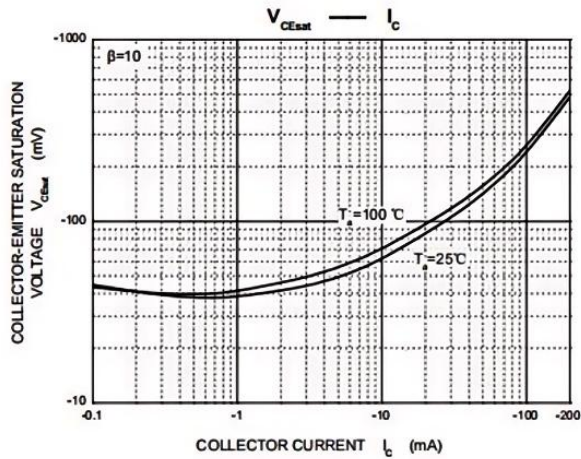
MMBT3906LP

Electrical Characteristics($T_J = 25^{\circ}\text{C}$)

Parameter	Symbol	Conditions	Min.	Max.	Units
Collector-base Breakdown Voltage	$V_{BR(CBO)}$	$I_C = -10\mu\text{A}, I_E = 0$	-40		V
Collector-emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, I_B = 0$	-40		V
Emitter-base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0$	-5		V
Collector Cut-off Current	I_{CEX}	$V_{CE} = -30\text{V}, V_{EB(off)} = -3\text{V}$		-50	nA
Emitter Cut-off Current	I_{EBO}	$I_C = 0, V_{EB} = -5\text{V}$		-100	nA
DC current gain	$H_{FE(1)}$	$V_{CE} = -1\text{V}, I_C = -0.1\text{mA}$	60		
	$H_{FE(2)}$	$V_{CE} = -1\text{V}, I_C = -1\text{mA}$	80		
	$H_{FE(3)}$	$V_{CE} = -1\text{V}, I_C = -10\text{mA}$	100	300	
	$H_{FE(4)}$	$V_{CE} = -1\text{V}, I_C = -50\text{mA}$	60		
	$H_{FE(5)}$	$V_{CE} = -1\text{V}, I_C = -100\text{mA}$	30		
Collector-emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C = -10\text{mA}, I_B = -1\text{mA}$		-0.25	V
	$V_{CE(sat)2}$	$I_C = -50\text{mA}, I_B = -5\text{mA}$		-0.4	V
Base-emitter Saturation Voltage	$V_{BE(sat)1}$	$I_C = -10\text{mA}, I_B = -1\text{mA}$	-0.65	-0.85	V
	$V_{BE(sat)2}$	$I_C = -50\text{mA}, I_B = -5\text{mA}$		-0.95	V
Transition frequency	F_T	$I_C = -10\text{mA}, V_{CE} = 20\text{V};$ $f = 100\text{MHz}$	250		MHz
Collector Output Capacitance	C_{ob}	$I_E = 0, V_{CB} = -5\text{V}, f = 1\text{MHz}$		4.5	pF
Base Input Capacitance	C_{ib}	$I_E = 0, V_{EB} = 0.5\text{V}, f = 1\text{MHz}$		10	pF
Noise Figure	NF	$I_E = -0.1\text{mA}, V_{CE} = -5\text{V},$ $R_G = 1\text{K}\Omega, f = 1\text{Hz}$		4	dB
Delay Time	t_d	$V_{CC} = -3\text{V}, V_{BE(off)} = 0.5\text{V},$ $I_C = -10\text{mA}, I_{B1} = -1\text{mA}$		35	ns
Rise Time	t_r			35	ns
Storage time	t_s	$V_{CC} = -3\text{V}, I_C = -10\text{mA},$ $I_{B1} = I_{B2} = -1\text{mA}$		225	ns
Fall Time	t_f			75	ns

Note : Repetitive Rating: Pulse width limited by maximum junction temperature

RATING AND CHARACTERISTIC CURVES (MMBT3906LP)



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