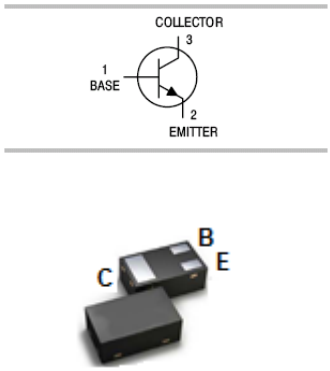
MMBT3904L

DFN1006-3L Bipolar Transistor(NPN)

FEATURES

- Epitaxial planar die construction.
- Complementary PNP type available (MMBT3906L).
- Collector Current Capability I_{CM} =200mA.
- Collector-emitter Voltage V_{CEO}=40V.



DFN1006-3

APPLICATIONS

- General switching and amplification

ORDERING INFORMATION

Type No.	Marking	Package Code
MMBT3904L	1AM	DFN1006-3

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

SYMBOL	PARAMETER	Value	UNIT
V_{CBO}	collector-base voltage	60	V
V_{CEO}	collector-emitter voltage	40	V
V_{EBO}	emitter-base voltage	6	V
I_C	collector current (DC)	200	mA
I_{CM}	peak collector current	200	mA
I_{BM}	peak base current	100	mA
P_{tot}	total power dissipation	150	mW
T_j ,T_{stg}	storage temperature	-55 to +150	°C

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = 30 V	-	50	nA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = 6 V	-	50	nA
h_{FE}	DC current gain	V_{CE} = 1 V; I_C= 0.1mA I_C = 1mA I_C = 10mA I_C = 50mA I_C = 100mA	60 80 100 60 30	- - 300 - -	
$V_{CE(sat)}$	collector-emitter saturation voltage	I_C = 10mA; I_B = 1mA	-	200	mV
		I_C = 50mA; I_B = 5mA	-	300	mV
$V_{BE(sat)}$	base-emitter saturation voltage	I_C = 10mA; I_B = 1mA	650	850	mV
		I_C = 50mA; I_B = 5mA	-	950	mV
C_{obo}	Output Capacitance	I_E = I_e= 0; V_{CB}= 5V; f = 1MHz	-	4	pF
C_{ibo}	Input Capacitance	I_C = I_c = 0; V_{BE}=500mV; f =1MHz	-	8	pF
f_T	transition frequency	I_C =10mA; V_{CE} =20V; f =100MHz	300	-	MHz
F	noise figure	I_C=100mA; V_{CE} =5V; R_S =1kΩ;f =10Hz to15.7kHz	-	5	dB
Switching times (between 10% and 90% levels);					
t_d	delay time	I_{Con}=10mA; I_{Bon} =1mA; I_{Boff} = -1mA	-	35	ns
t_r	rise time		-	35	ns
t_s	storage time		-	200	ns
t_f	fall time		-	50	ns

Note Pulse test: tp≤300 ms; d≤0.02.

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

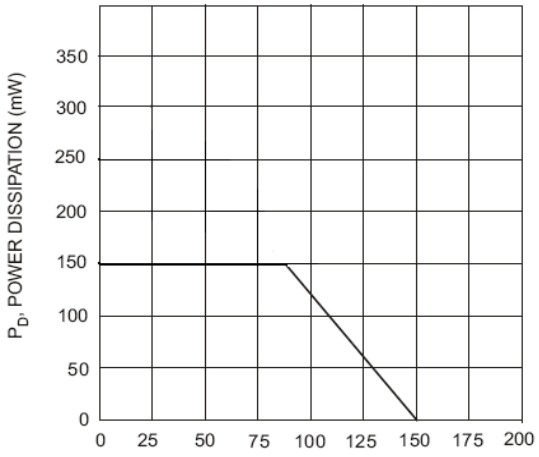


Fig. 1, Max Power Dissipation vs Ambient Temperature

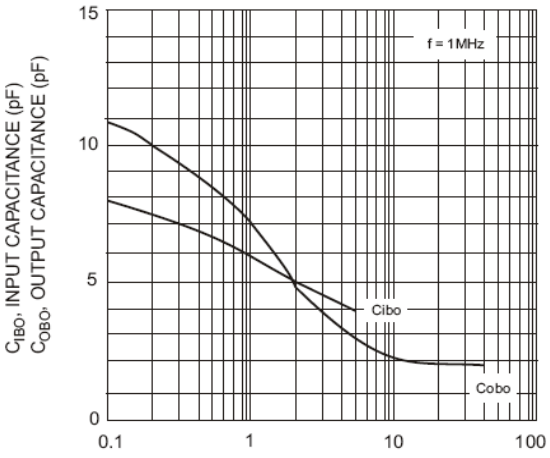


Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage

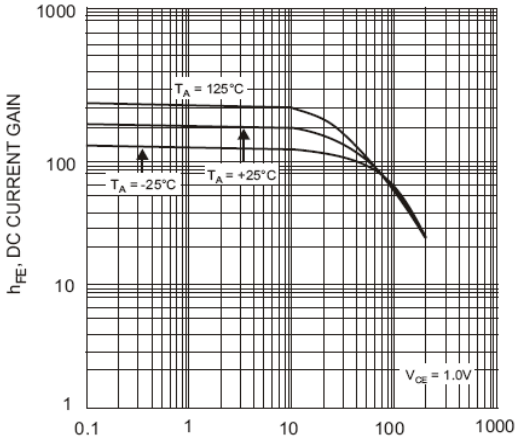


Fig. 3, Typical DC Current Gain vs Collector Current

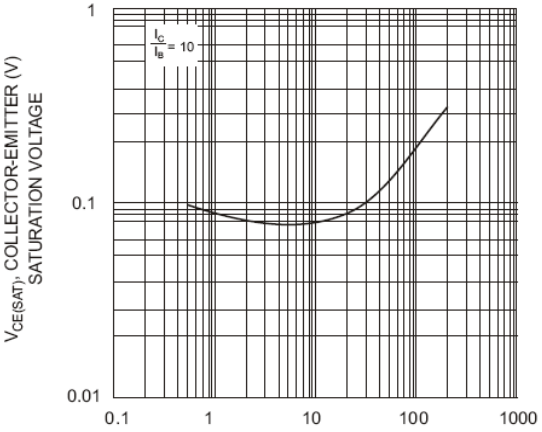


Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current

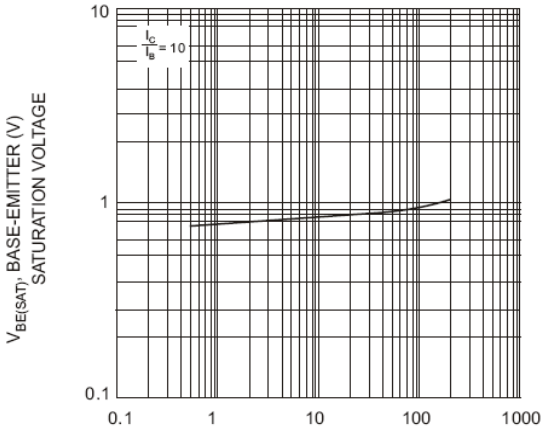


Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current

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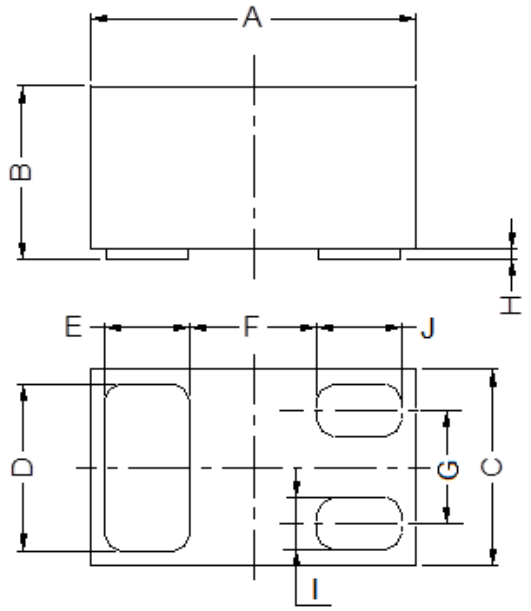
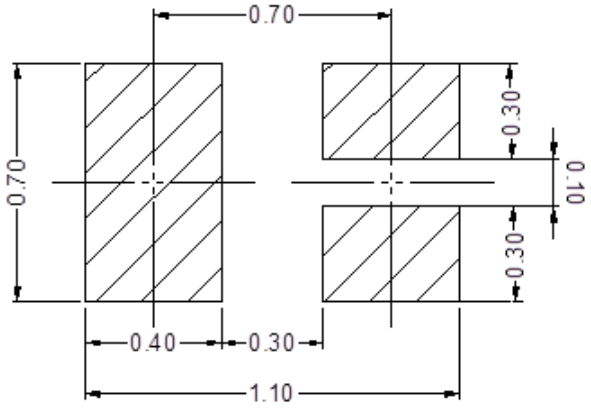
PACKAGE OUTLINE

Plastic surface mounted package DFN1006-3



DFN1006-3			
Dim	Min	Typ	Max
A	0.95	1.00	1.075
B	0.47	0.50	0.53
C	0.55	0.60	0.675
D	0.45	0.50	0.55
E/J	0.20	0.25	0.30
F	-	0.40	-
G	-	0.35	-
H	0	0.03	0.05
I	0.10	0.15	0.20
All Dimensions in mm			

SOLDERING FOOTPRINT



Unit: mm

PACKAGE INFORMATION

Device	Package	Shipping
MMBT3904L	DFN1006-3	10000 pcs / Tape & Reel