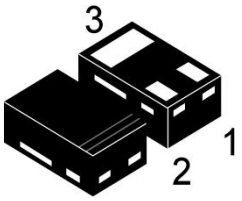
MMBT3904NC

Feature

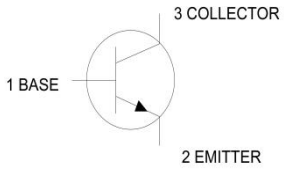
- Switching Transistor
- Collector-emitter voltage VCE=40V
- Collector current IC=0.2A

Package

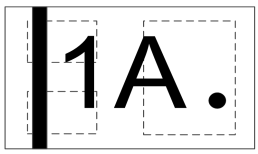


DFN1006-3L

Circuit diagram



Marking



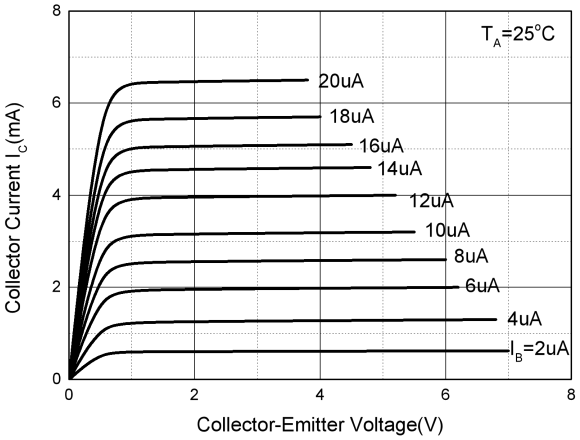
Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector Emitter Voltage	V_{CEO}	40	V
Collector Base Voltage	V_{CBO}	60	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	200	mA
Power Dissipation	P_{tot}	100	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	- 55 to + 150	℃

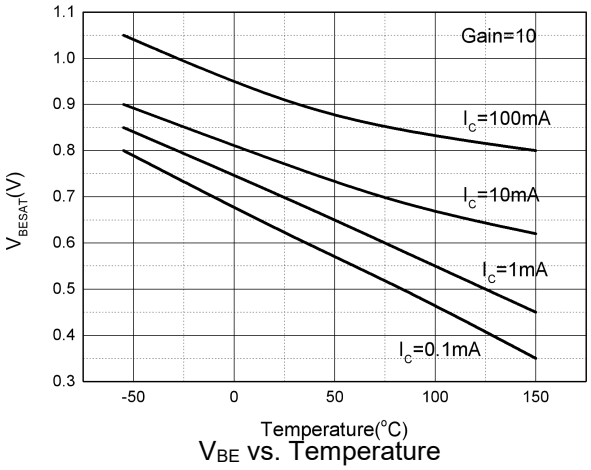
Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Max	Unit
Collector-emitter breakdown voltage	BV_{CEO}	IC=1mA , IB=0	40		V
Collector-base breakdown voltage	BV_{CBO}	IC=10μA ,IE=0	60		V
Emitter-base breakdown voltage	BV_{EBO}	IE=10μA,IC=0	6		V
Collector cut-off current	I_{CBO}	VCB=60V, IE=0		100	nA
Collector cut-off current	I_{CEO}	VCE=40V, IB=0		5	uA
Emitter cut-off current	I_{EBO}	VEB=6V, IC=0		100	nA
DC current gain	h_{FE}	VCE=1V, IC=10mA	100	400	
		VCE=1V, IC=0.1mA	40		
		VCE=1V, IC=1mA	70		
		VCE=1V, IC=100mA	30		
Collector-emitter saturation voltage	$V_{CE(sat)}$	IC=10mA, IB=1mA		0.2	V
		IC=50mA, IB=5mA		0.3	
Base-emitter saturation voltage	$V_{BE(sat)}$	IC=10mA, IB=1mA	0.65	0.85	V
		IC=50mA, IB=5mA		0.95	
Transition frequency	f_T	VCE= 20V, IC=10mA,f=100MHz	300		MHZ
Output Capactitance	Cobo	VCB=5.0Vdc,IE=0,f=1.0Mhz		4	pF
Input Capactitance	Cibo	VEB=0.5Vdc,IE=0,f=1.0Mhz		8	pF
Delay Time	Td	VCC=3.0Vdc, VBE=-0.5Vdc, IC=10mAdc, IB1=1.0mAdc		35	ns
Rise Time	Tr			35	
Storage Time	Ts	VCC=3.0Vdc, IC=10mAdc, IB1=IB2=1.0mAdc		200	
Fall Time	Tf			50	

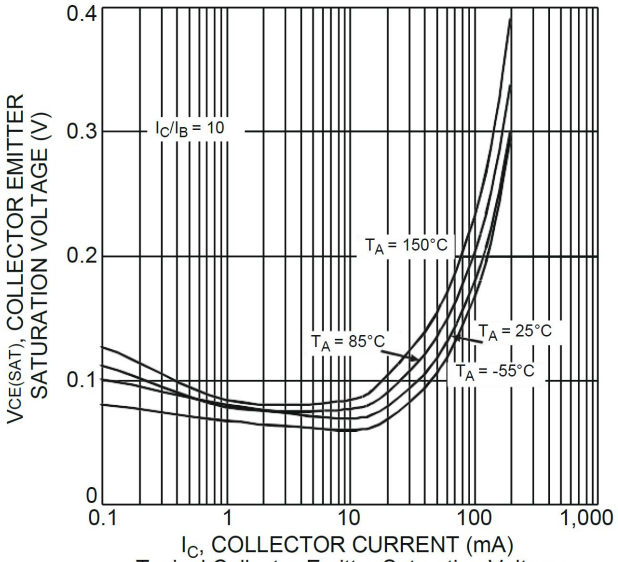
Typical Characteristics



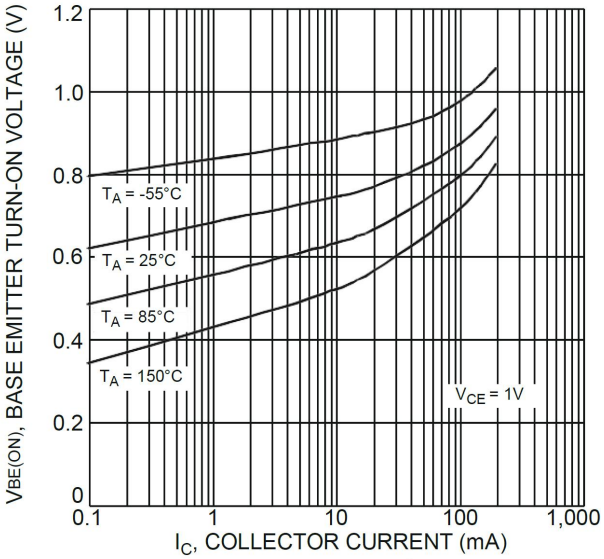
Static Characteristic



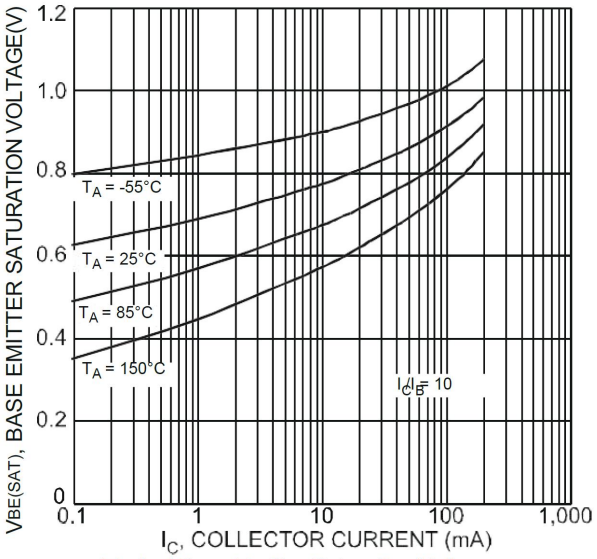
V_{BE} vs. Temperature



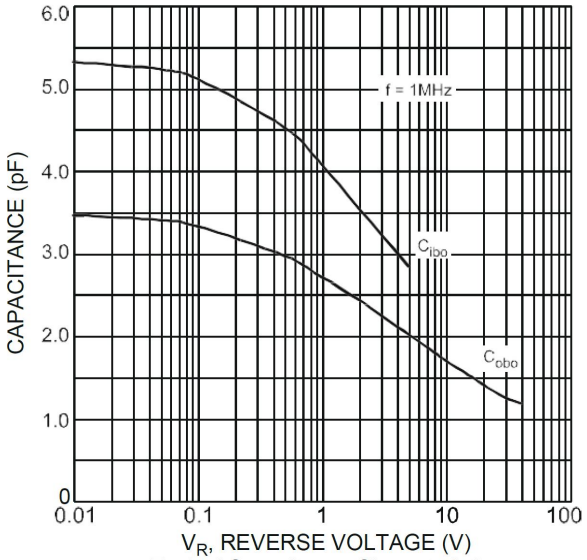
Typical Collector-Emitter Saturation Voltage vs. Collector Current



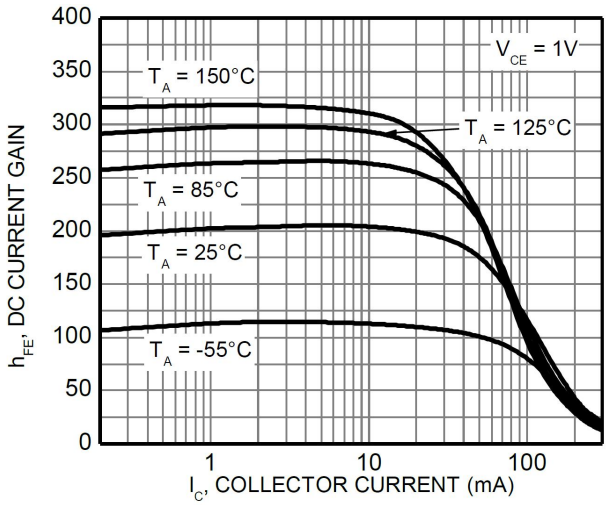
Typical Base-Emitter Turn-On Voltage vs. Collector Current



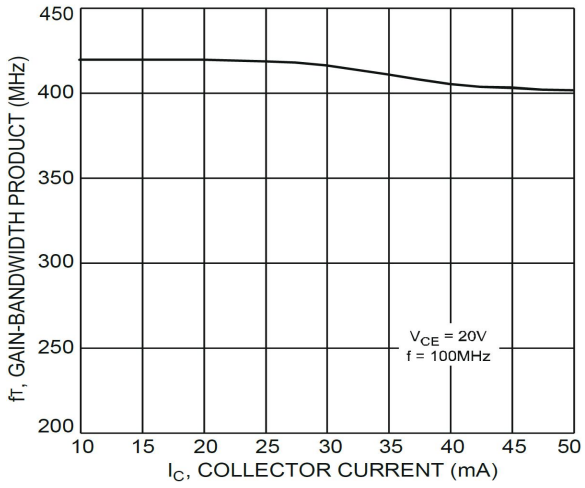
Typical Base-Emitter Saturation Voltage vs. Collector Current



Typical Capacitance Characteristics

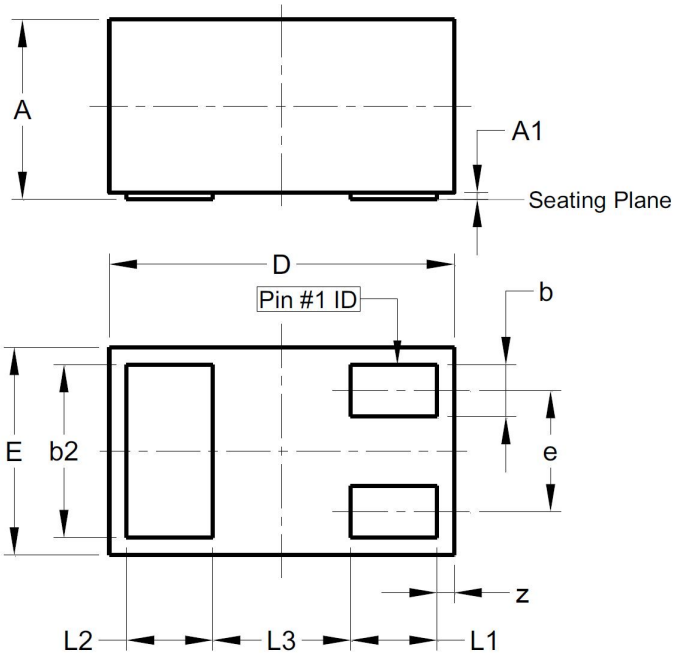


Typical DC Current Gain vs. Collector Current



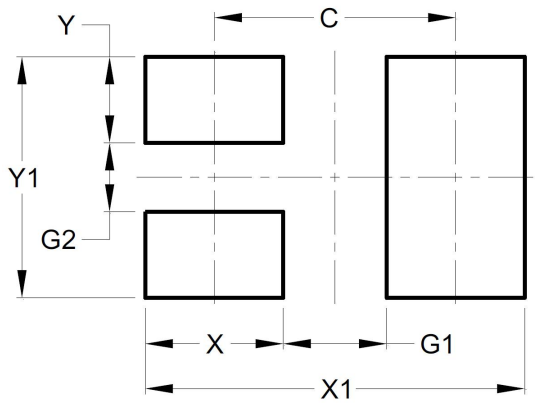
Typical Gain-Bandwidth Product vs. Emitter Current

DFN1006-3L Package Information



Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.47	0.50	0.55
A1	0.00	-	0.05
b	0.10	0.15	0.20
b2	0.45	0.50	0.55
D	0.95	1.0	1.05
E	0.55	0.60	0.65
e	0.35BSC		
L1	0.20	0.25	0.30
L2	0.20	0.25	0.30
L3	0.40		
z	0.02	0.05	0.08

Recommend land pattern (Unit: mm)



Dimensions	Value (in mm)
C	0.70
G1	0.30
G2	0.20
X	0.40
X1	1.10
Y	0.25
Y1	0.70