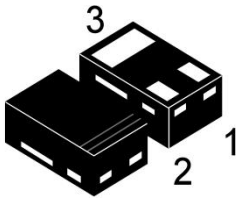
MMBT3906NC

Feature

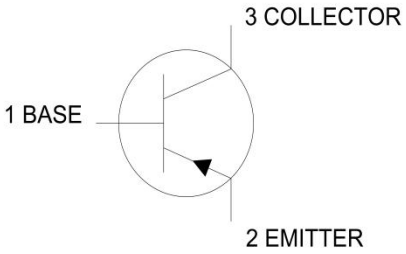
- Switching Transistor
- Collector-emitter voltage VCE=-40V
- Collector current IC=-0.2A

Package

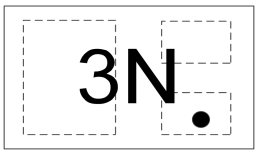


DFN1006-3L

Circuit diagram



Marking



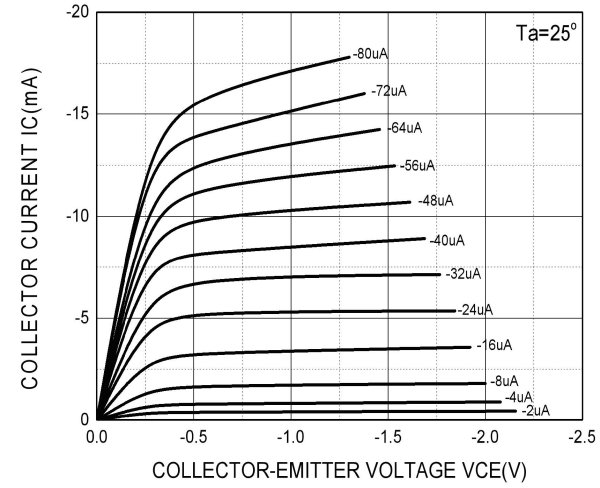
Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	-40	V
Collector Emitter Voltage	V_{CEO}	-40	V
Emitter Base Voltage	V_{EBO}	-5	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	℃

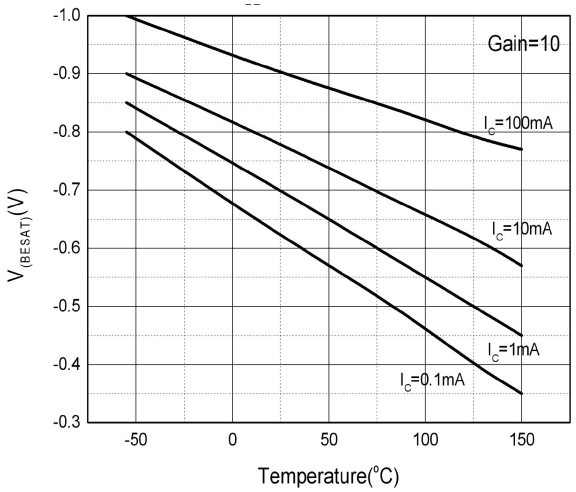
Electrical characteristics (T_A=25 ºC, unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Max	Unit
Collector-base breakdown voltage	BV_{CBO}	I_C=-100μA ,I_E=0	-40		V
Collector-emitter breakdown voltage	BV_{CEO}	I_C=-100μA , I_B=0	-40		V
Emitter-base breakdown voltage	BV_{EBO}	I_E=-100μA,I_C=0	-5		V
Collector cut-off current	I_{CBO}	V_{CB}=-30V, I_E=0		-100	nA
Collector cut-off current	I_{CEO}	V_{CE}=-30V, I_B=0		-50	nA
Emitter cut-off current	I_{EBO}	V_{EB}=-5V, I_C=0		-100	nA
DC current gain	h_{FE1}	V_{CE}=-1V, I_C=-0.1mA	60		
	h_{FE2}	V_{CE}=-1V, I_C=-1mA	80		
	h_{FE3}	V_{CE}=-1V, I_C=-10mA	100	300	
	h_{FE4}	V_{CE}=-1V, I_C=-50mA	60		
	h_{FE5}	V_{CE}=-1V, I_C=-100mA	30		
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-10mA, I_B=-1mA		-0.25	V
	$V_{CE(sat)}$	I_C=-50mA, I_B=-5mA		-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=-10mA, I_B=-1mA	-0.65	-0.85	V
	$V_{BE(sat)}$	I_C=-50mA, I_B=-5mA		-0.95	V
Transition frequency	f_T	V_{CE}= -20V, I_C=-10mA,f=30MHz	250		MHZ
Collector output capacitance	C_{ob}	V_{CB}=-5V, I_E=0, f=1MHz		4.5	pF
Base Input capacitance	C_{ib}	V_{EB}=-0.5V, I_E=0, f=1MHz		10	pF
Noise figure	N_F	V_{CE}=-5V, I_E=-0.1mA, f=1kHz, R_G=1kΩ		4	dB
Delay time	t_d	V_{CC}=-3V,$V_{BE(OFF)}$=0.5V, I_C=-10mA,I_{B1}=-1mA		35	ns
Rise time	t_r			35	ns
Storage time	t_s	V_{CC}=-3V, I_C=-10mA, I_{B1}= I_{B2}=- 1mA		225	ns
Fall time	t_f			75	ns

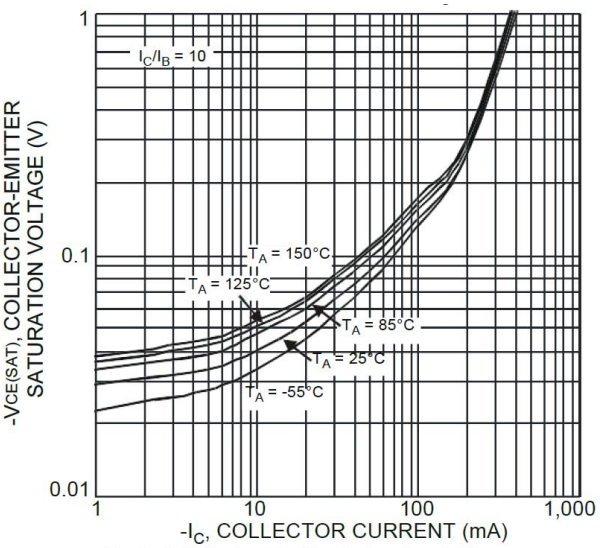
Typical Characteristics



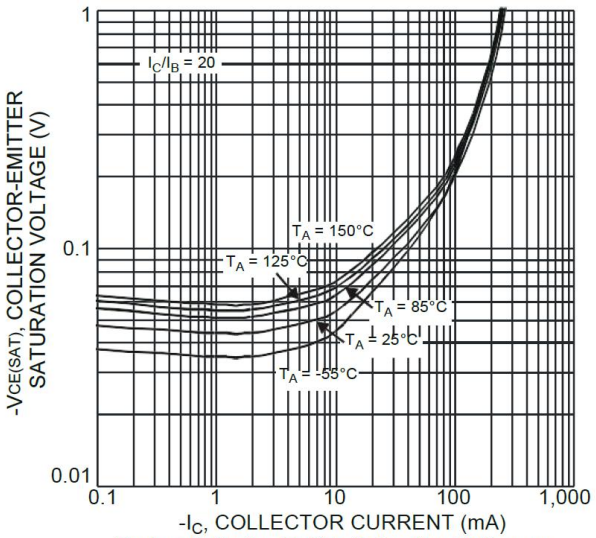
Static Characteristic



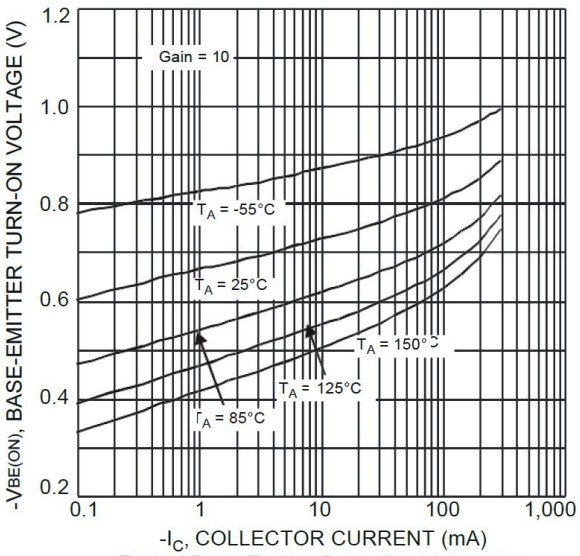
V_{BE} vs. Temperature



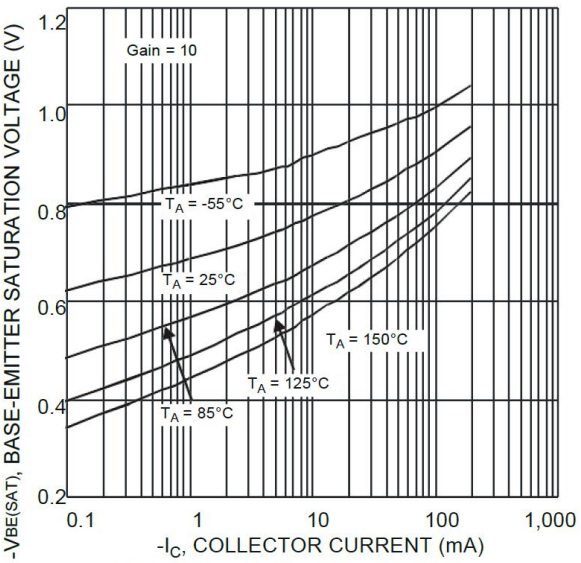
Typical Collector-Emitter Saturation Voltage vs. Collector Current



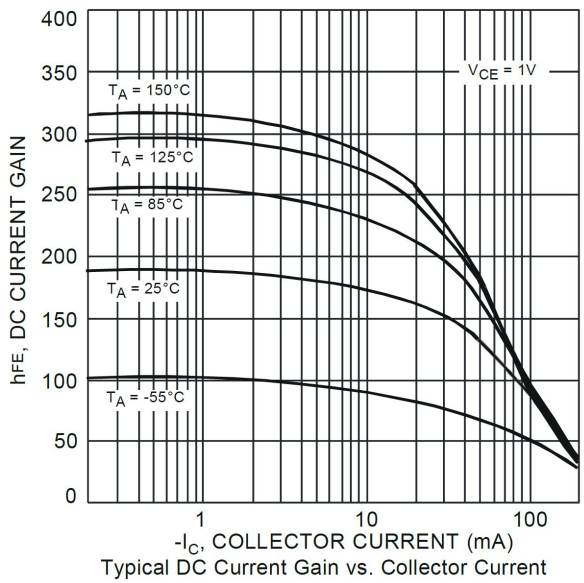
Typical Collector-Emitter Saturation Voltage vs. Collector Current



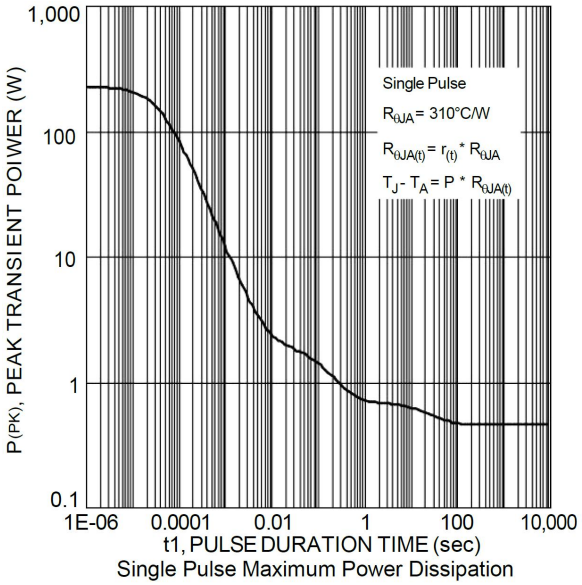
Typical Base-Emitter Saturation Voltage vs. Collector Current



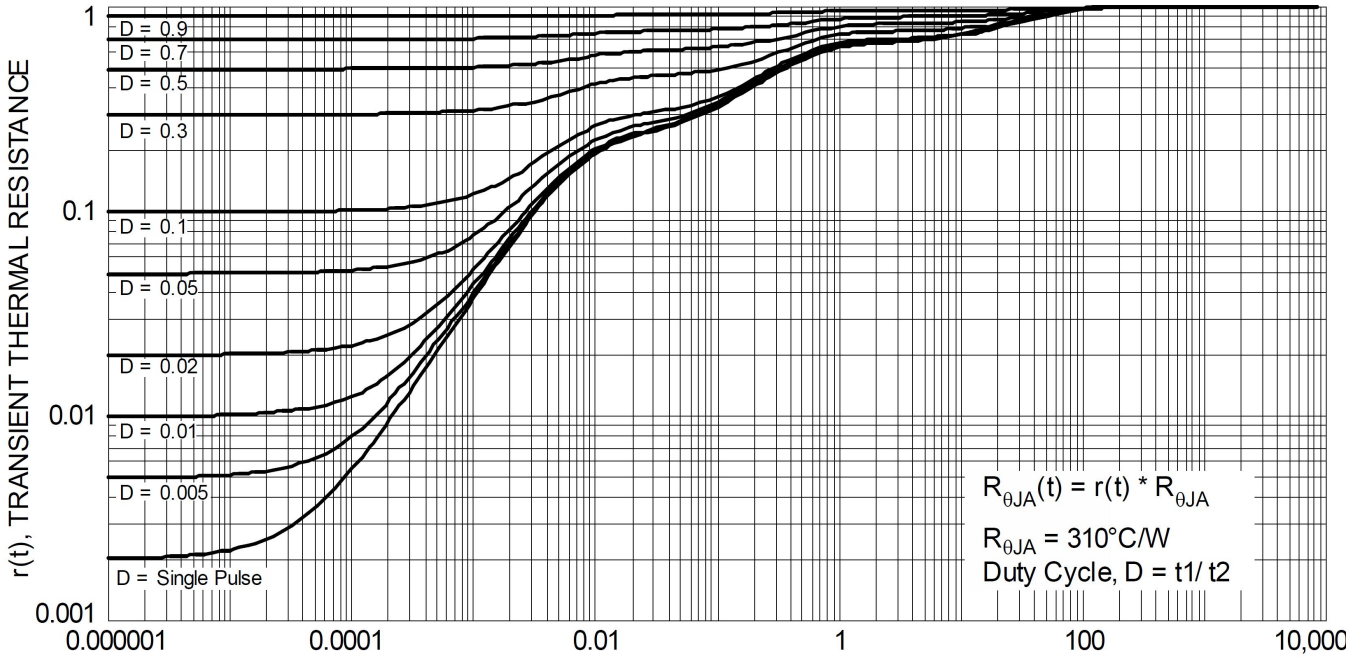
Typical Base-Emitter Saturation Voltage vs. Collector Current



Typical DC Current Gain vs. Collector Current

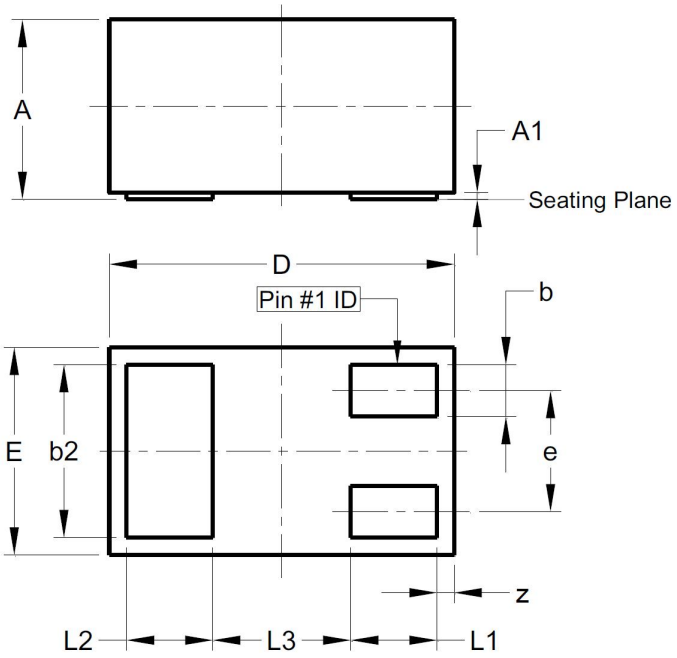


Single Pulse Maximum Power Dissipation



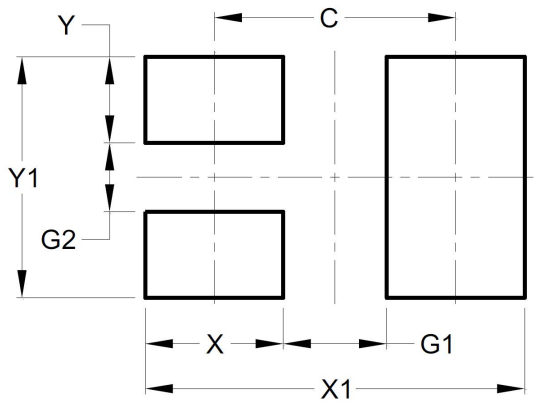
Transient Thermal Resistance

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

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