TK3906LED03

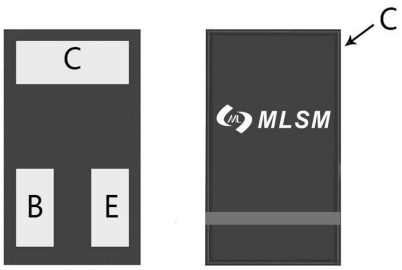
Transistor(PNP)

Features

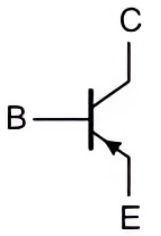
- Ultra Small SMD Plastic Package
- Epitaxial Planar Die Construction
- Complementary to TK3904LED03
- Available in Lead Free Version

Application

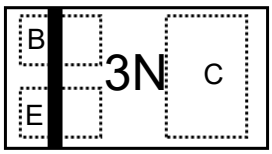
- General-Purpose Amplification and Switching Transistor for Portable Equipment :(i.e. Mobile phone, MP3, MD, CD-ROM, DVD-ROM, Note book PC, etc.)



DFN1006-3L top view



Schematic diagram



Marking and pin assignment

Pb-Free RoHS Halogen-Free

Maximum Ratings(Ta=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-200	mA
P_C	Collector Power Dissipation	100	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	1250	°C/W
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	°C

Ordering Information (Example)

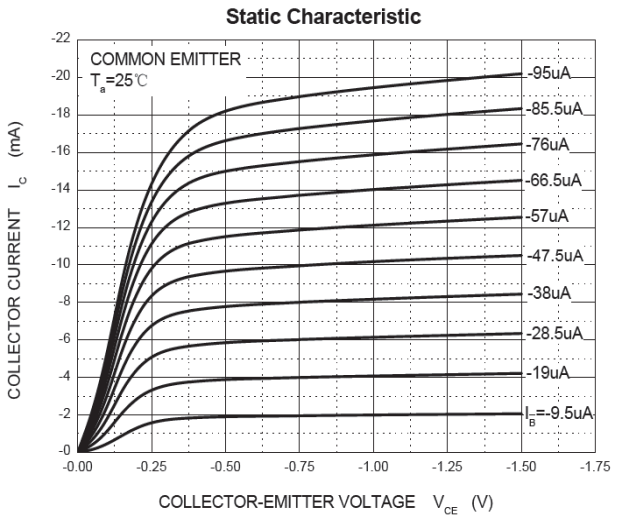
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
TK3906LED03	DFN1006-3L	3N	10,000	150,000	600,000	7"reel

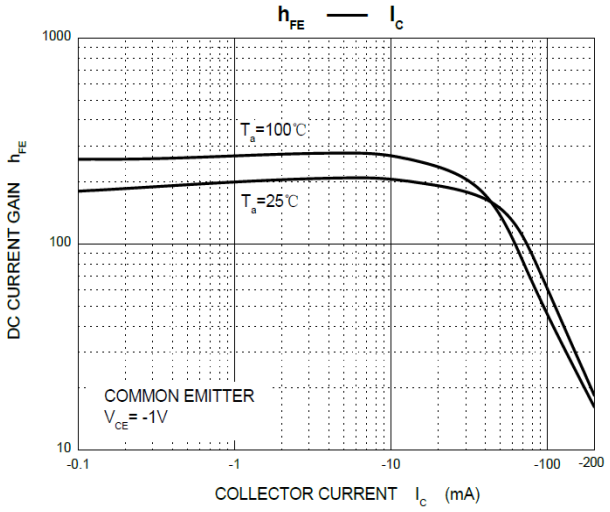
Electrical Characteristics (TJ=25℃ unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	I_C=-10μA, I_E=0	-40	--	--	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	I_C=-1mA, I_B=0	-40	--	--	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	I_E=-10μA, I_C=0	-5	--	--	V
I_{CEX}	Collector cut-off current	V_{CB}=-30V , $V_{EB(off)}$=-3V	--	--	-50	nA
I_{EBO}	Emitter cut-off current	V_{CB}=-5V , I_C=0	--	--	-100	nA
$H_{FE(1)}$	DC current gain	V_{CE}=-1V, I_C=-0.1mA	60	--	--	
$H_{FE(2)}$		V_{CE}=-1V, I_C=-1mA	80	--	--	
$H_{FE(3)}$		V_{CE}=-1V, I_C=-10mA	100	--	300	
$H_{FE(4)}$		V_{CE}=-1V, I_C=-50mA	60	--	--	
$H_{FE(5)}$		V_{CE}=-1V, I_C=-100mA	30	--	--	
$V_{CE(sat)1}$	Collector-emitter saturation voltage	I_C=-10mA, I_B=-1mA	--	--	-0.25	V
$V_{CE(sat)2}$		I_C=-50mA, I_B=-5mA	--	--	-0.4	V
$V_{BE(sat)1}$	Base-emitter saturation voltage	I_C=-10mA, I_B=-1mA	-0.65	--	-0.85	V
$V_{BE(sat)2}$		I_C=-50mA, I_B=-5mA	--	--	-0.95	V
f_T	Transition frequency	V_{CE}=-20V,I_C=-10mA,f=100MHz	250	--	--	MHz
C_{ob}	Collectoroutputcapacitance	V_{CB}=-5V, I_E=0, f=1MHz	--	--	4.5	pF
C_{ib}	Base Input capacitance	V_{EB}=-0.5V, I_E=0, f=1MHz	--	--	10	pF
NF	Noisefigure	V_{CE}=-5V, I_E=-0.1mA, f=1kHz, R_G=1kΩ	--	--	4	dB
t_d	Delay time	V_{CC}=-3V,$V_{BE(OFF)}$=0.5V,	--	--	35	ns
t_r	Rise time	I_C=-10mA,I_{B1}=-1mA	--	--	35	ns
t_s	Storage time	V_{CC}=-3V, I_C=-10mA,	--	--	225	ns
t_f	Fall time	I_{B1}= I_{B2}=- 1mA	--	--	75	ns

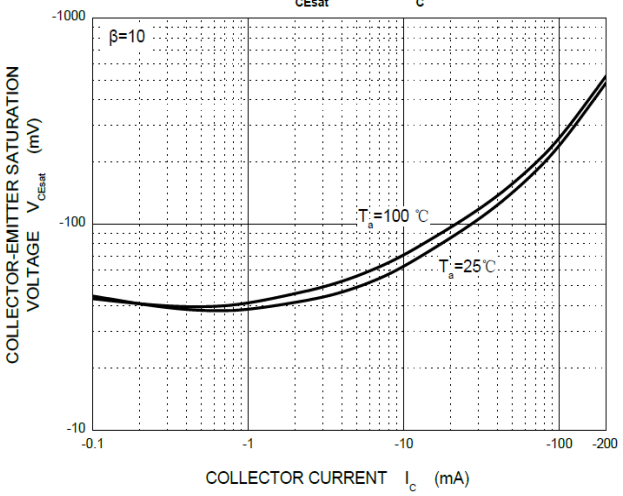
*Pulsetest:pulsewidth≤300μs,dutycycle≤2.0%.

Typical Operating Characteristics

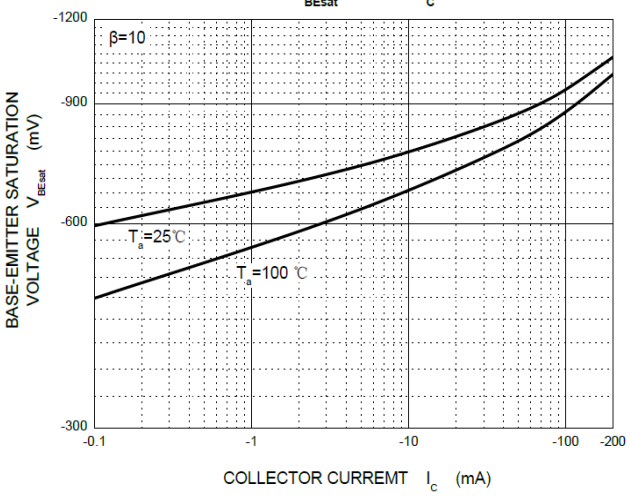




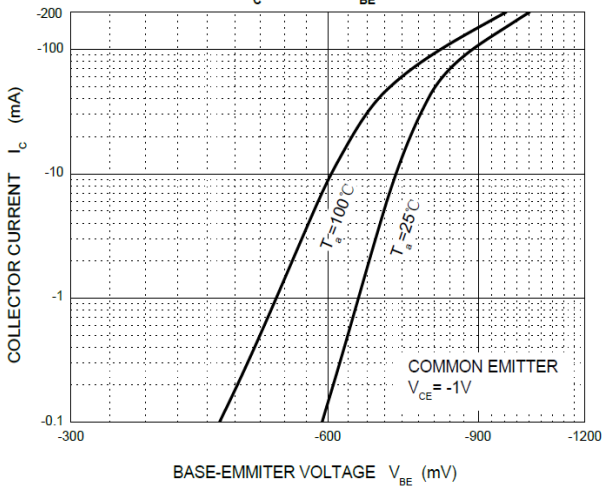
V_{CEsat} — I_C



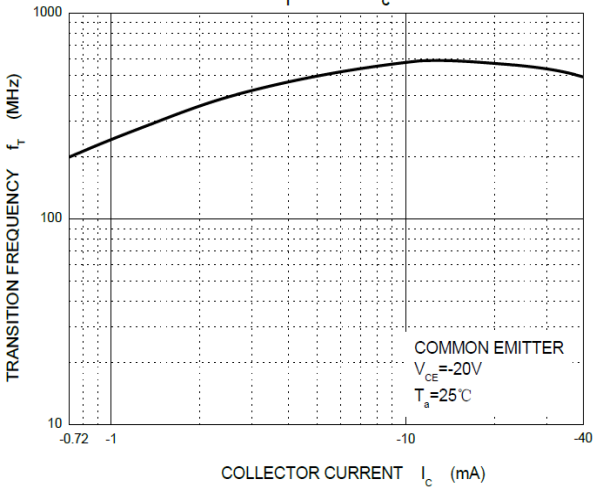
V_{BEsat} — I_C



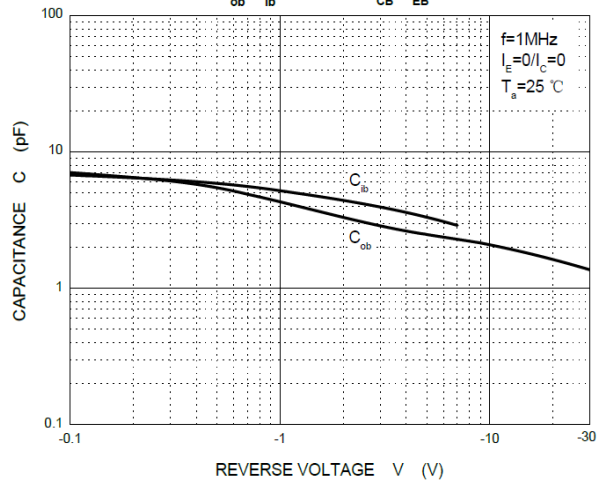
I_C — V_{BE}



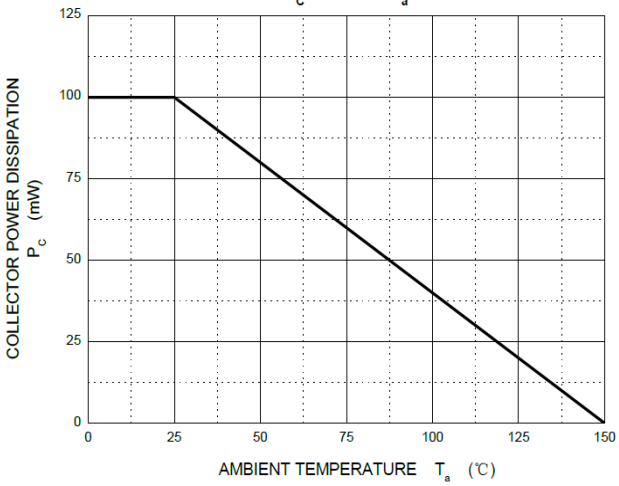
f_T — I_C



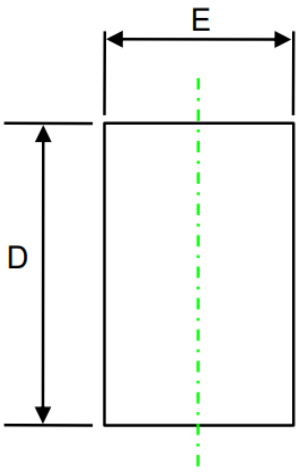
C_{ob}/C_{ib} — V_{CB}/V_{EB}



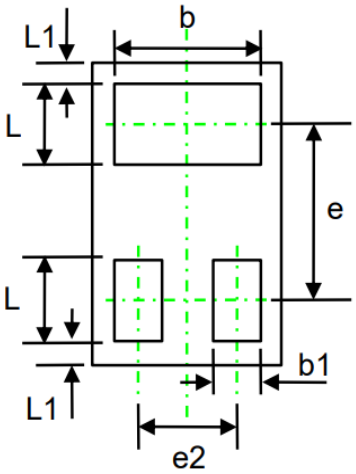
P_C — T_a



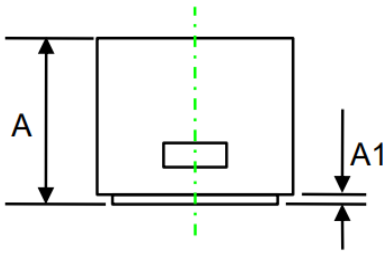
DFN1006-3L Package information



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.450	0.550	0.017	0.021
A1	0.000	0.030	0.000	0.001
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.021	0.025
b	0.470	0.550	0.018	0.021
e	0.65TYP		0.025TYP	
e2	0.35TYP		0.013TYP	
L1	0.05TYP		0.001TYP	
L	0.220	0.300	0.008	0.012
b1	0.110	0.190	0.004	0.007