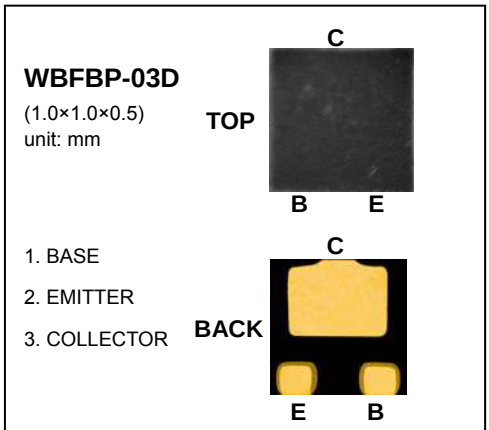
WBFBP-03D Plastic-Encapsulate Transistors

TK3904LLD03 TRANSISTOR

WBFBP-03D
(1.0×1.0×0.5)
unit: mm

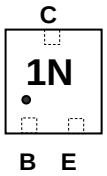


DESCRIPTION
NPN Epitaxial Silicon Transistor

FEATURES
Epitaxial Planar Die Construction
Complementary PNP Type Available (TK3906LLD03)
Ultra-Small Surface Mount Package
Also Available in Lead Free Version

APPLICATION
General Purpose Amplifier, switching
For portable equipment:(i.e. Mobile phone,MP3, MD,CD-ROM, DVD-ROM, Note book PC, etc.)

MARKING:1N



MAXIMUM RATINGS(T_a=25℃ unless otherwise noted)

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 -Continuous	0.2	A
P_C	Collector Dissipation	0.1	W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55~150	℃

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=10μA,I_E=0	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA,I_B=0	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA,I_C=0	6			V
Collector cut-off current	I_{CEX}	V_{CE}=30V,$V_{EB(off)}$=3V			0.05	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5V,I_C=0			0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=1V,I_C=0.1mA	40			
	$h_{FE(2)}$	V_{CE}=1V,I_C=1mA	70			
	$h_{FE(3)}$	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			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	I_C=10mA,I_B=1mA			0.2	V
	$V_{CE(sat)2}$	I_C=50mA,I_B=5mA			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	I_C=10mA,I_B=1mA	0.65		0.85	V
	$V_{BE(sat)2}$	I_C=50mA,I_B=5mA			0.95	V
Transition frequency	f_T	V_{CE}=20V,I_C=10mA,f=100MHz	300			MHz

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector output capacitance	C_{ob}	V_{CB}=5V,I_E=0,f=1MHz			4	pF
Noise figure	NF	V_{CE}=5V,I_c=0.1mA,			5	dB
Delay time	t_d	V_{CC}=3V, $V_{BE(off)}$=-0.5V,			35	ns
Rise time	t_r	I_C=10mA , I_{B1}=1mA			35	ns
Storage time	t_S	V_{CC}=3V, I_C=10mA			200	ns
Fall time	t_f	I_{B1}= I_{B2}= 1mA			50	ns