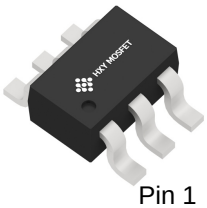
MBT3904DW1T1G

Dual-NPN Plastic-Encapsulate Transistors

Features

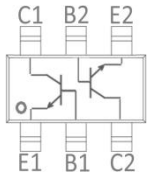
Epitaxial planar die construction.

Ideal for low power amplification and switching.



Pin 1

SOT-363



Pin 1

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MBT3904DW1T1G	SOT-363	K6N	3000

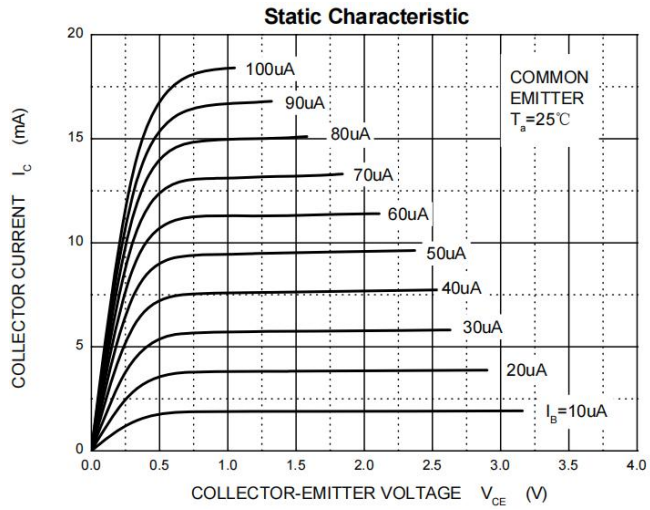
Maximum Ratings (Ta=25°C unless otherwise noted)

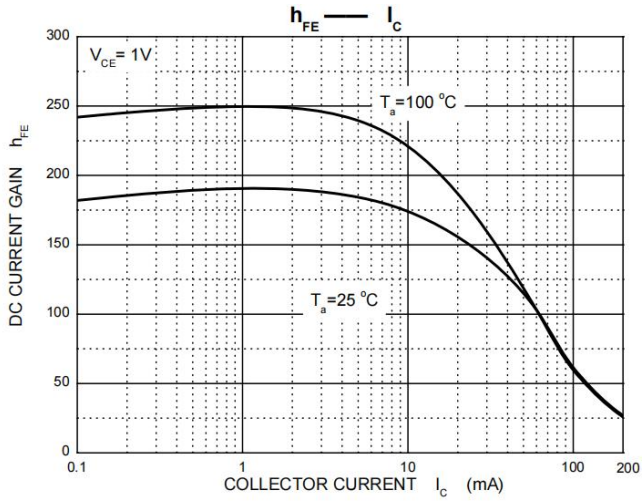
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	200	mA
P_C	Collector Power Dissipation	200	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	625	°C/W
T_J ,T_{stg}	Operation Junction And Storage Temperature Range	-55～+150	°C

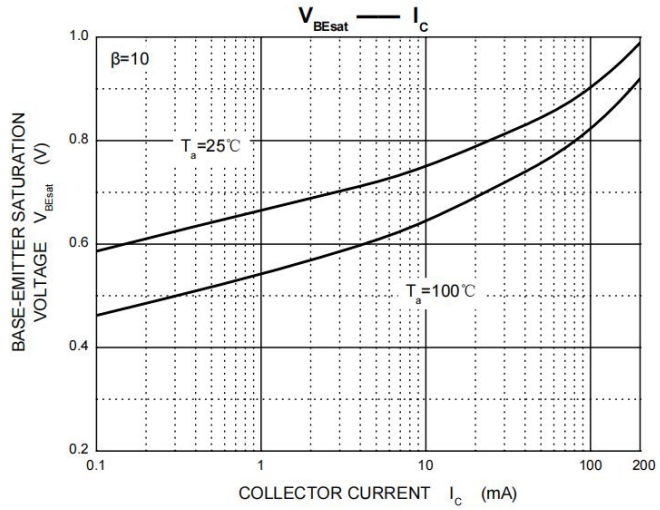
Electrical Characteristics (Ta=25°C unless otherwise noted)

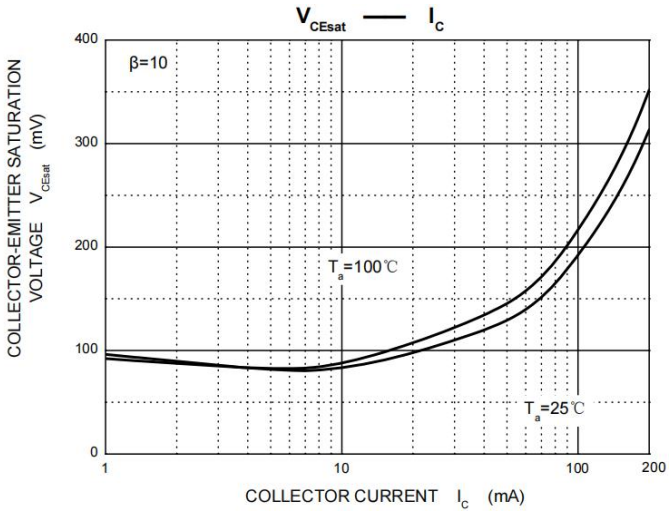
Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	I_C=10μA, I_E=0	60			V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	I_C=1mA, I_B=0	40			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	I_E=10μA, I_C=0	6			V
I_{CEX}	Collector cut-off current	V_{CE}=30V, $V_{EB(off)}$=3V			50	nA
I_{CBO}	Collector cut-off current	V_{CB}=30V, I_E=0			50	nA
I_{EBO}	Emitter cut-off current	V_{EB}=5V, I_C=0			50	nA
h_{FE}(1)	DC current gain(1)	V_{CE}=1V, I_C=100μA	40			
h_{FE}(2)	DC current gain(2)	V_{CE}=1V, I_C=1mA	70			
h_{FE}(3)	DC current gain(3)	V_{CE}=1V, I_C=10mA	100		300	
h_{FE}(4)	DC current gain(4)	V_{CE}=1V, I_C=50mA	60			
h_{FE}(5)	DC current gain(5)	V_{CE}=1V, I_C=100mA	30			
$V_{CE(sat)}$	Collector-emitter saturation voltage	I_C=10mA, I_B=1mA			0.2	V
		I_C=50mA, I_B=5mA			0.3	V
$V_{BE(sat)}$	Base-emitter saturation voltage	I_C=10mA, I_B=1mA	0.65		0.85	V
		I_C=50mA, I_B=5mA			0.95	V
f_T	Transition frequency	V_{CE}=20V, I_C=10mA, f=100MHz	300			MHz
Cob	Collector output capacitance	V_{CB}=5V, I_E=0, f=1MHz			4	pF
NF	Noise figure	VCE=5V,Ic=0.1mA,f=1kHz,Rg=1KΩ			5	dB
t_d	Delay time	V_{CC}=3V, $V_{BE(off)}$=0.5V,			35	ns
t_r	Rise time	I_C=10mA, I_{B1}=I_{B2}=1mA			35	ns
t_s	Storage time	V_{CC}=3V, I_C=10mA,			200	ns
t_f	Fall time	I_{B1}=I_{B2}=1mA			50	ns

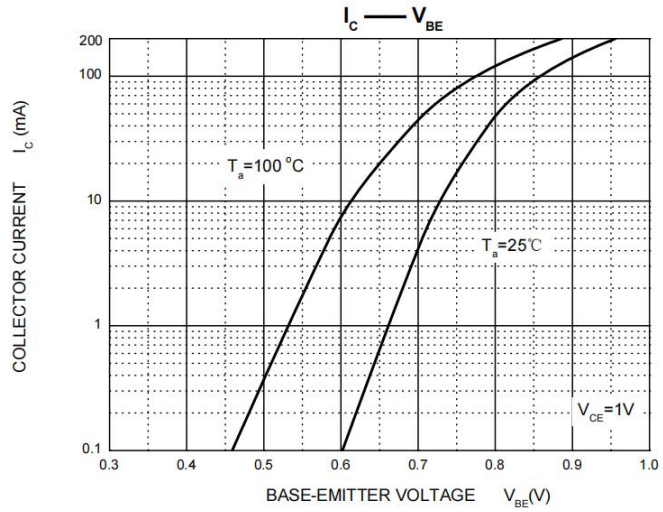
Typical Characteristics

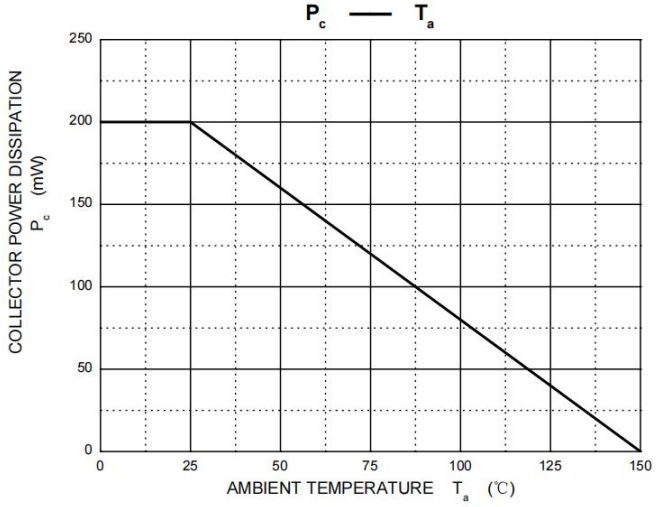




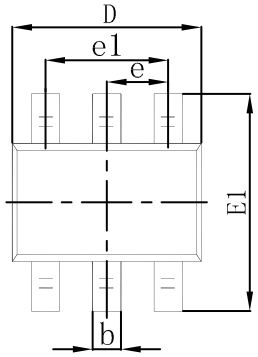


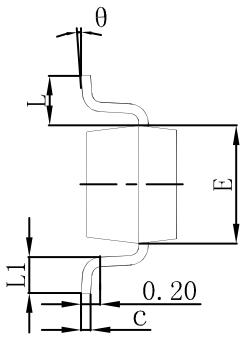


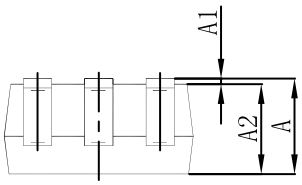




SOT-363 Package Outline Dimensions

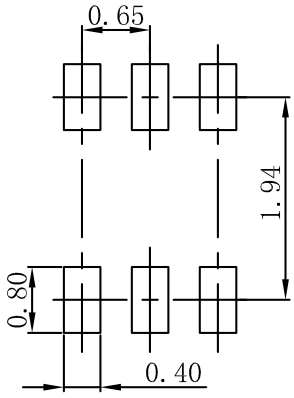






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-363 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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