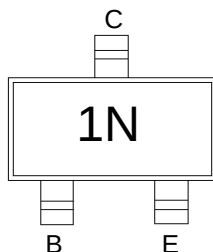


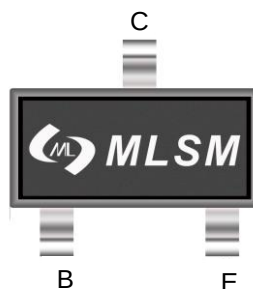
Features

- Complementary to MMBT3906T
- Small Package

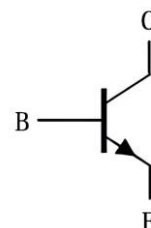
MARKING: 1N



1N = Device code



SOT-523 top view



Schematic diagram



Halogen-Free

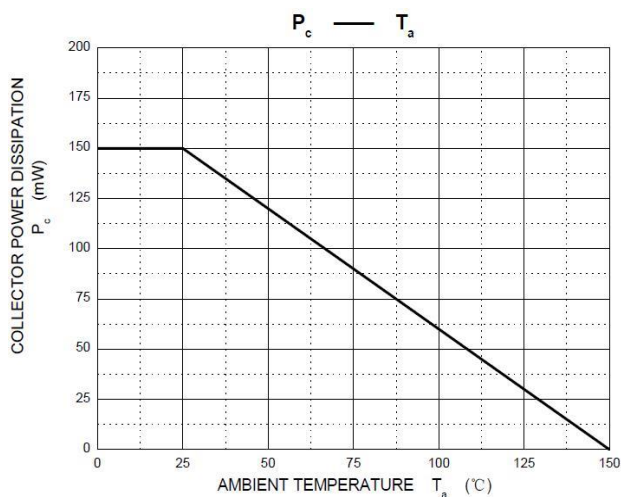
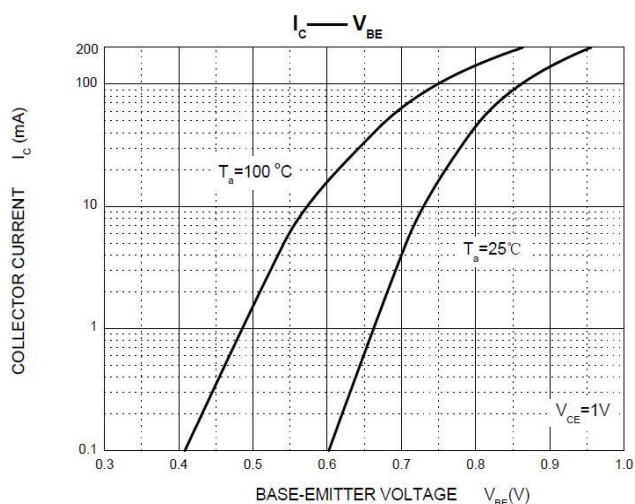
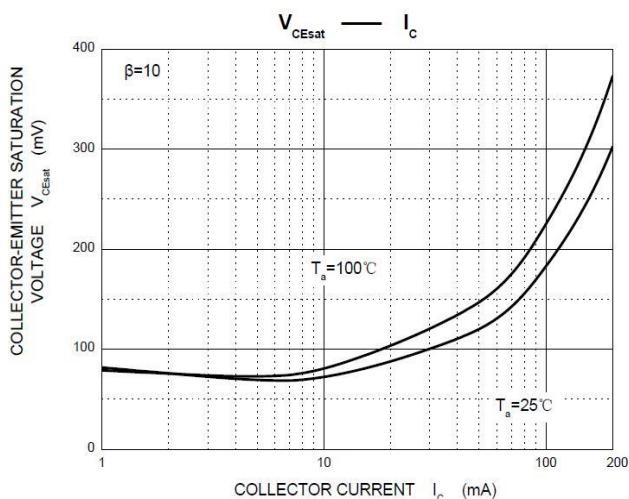
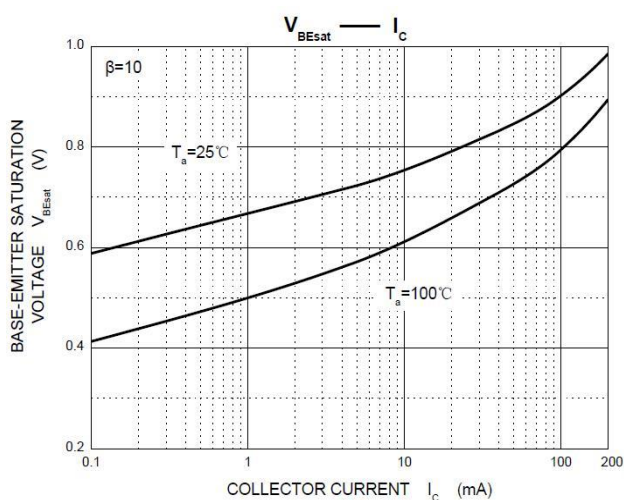
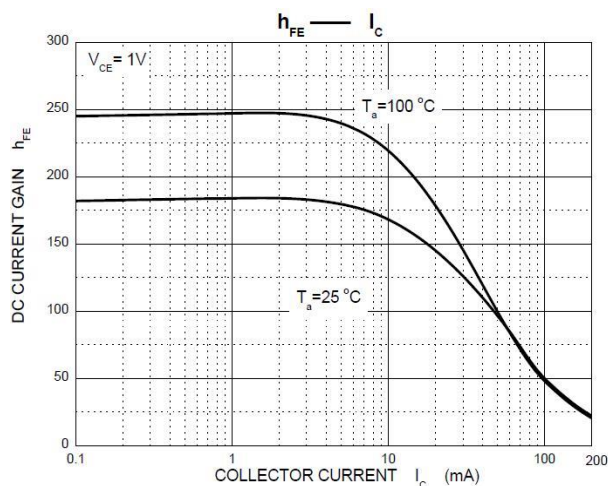
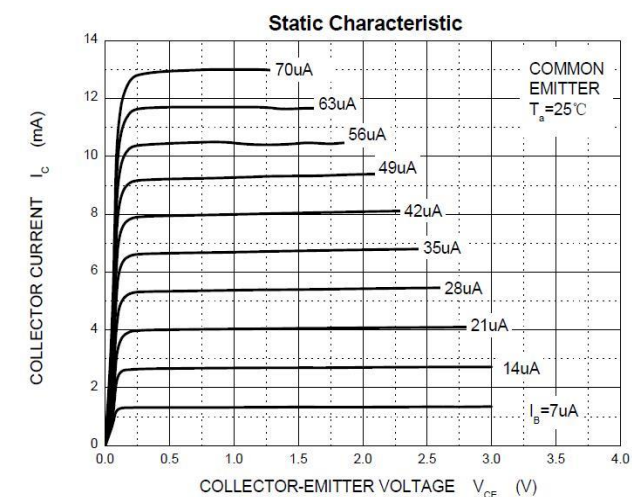
MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Limit	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	Power Dissipation	150	mW
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	833	°C/W
T_J, T_{STG}	Operation Junction and Storage Temperature Range	-55~+150	°C

ELECTRICAL CHARACTERISTICS(Ta=25°C unless otherwise specified)

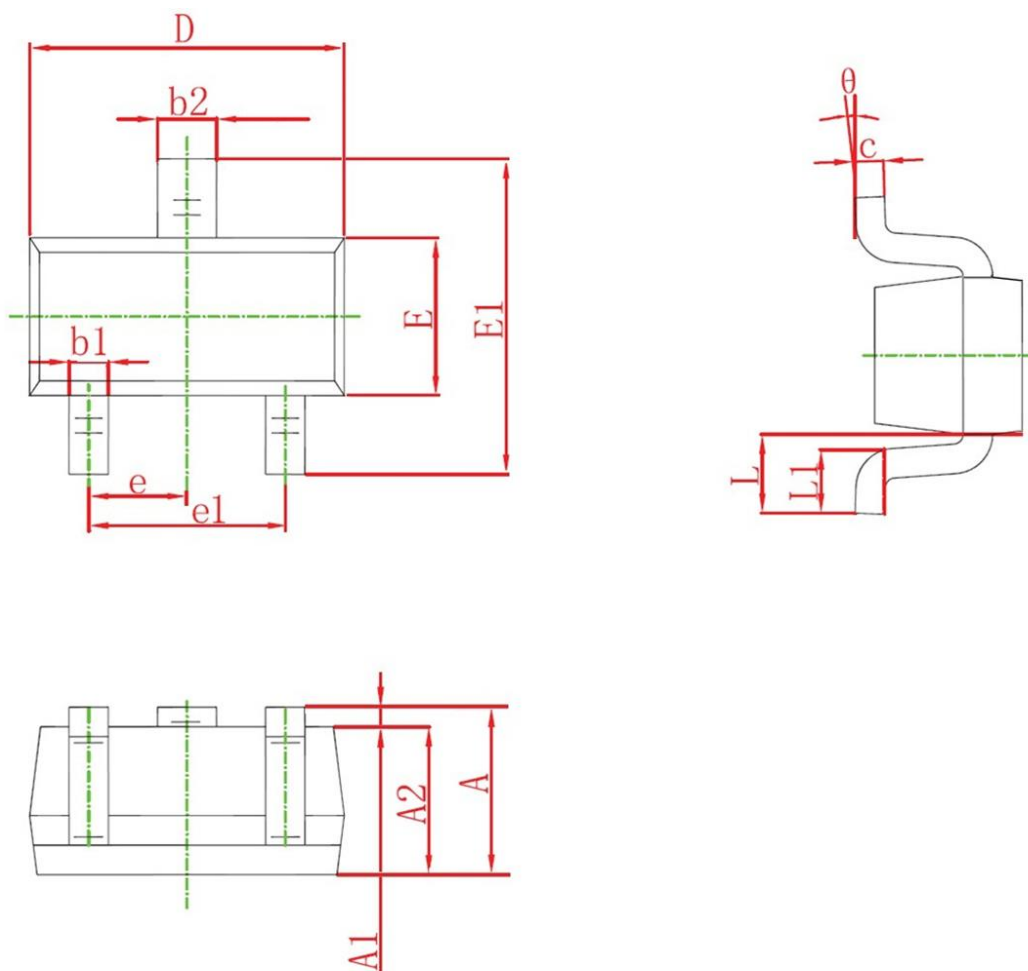
Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C=10\mu A, I_E=0$	60	--	--	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=1mA, I_B=0$	40	--	--	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=10\mu A, I_C=0$	6	--	--	V
I_{CEX}	Collector cut-off current	$V_{CE}=30V, V_{EB(off)}=3V$	--	--	50	nA
I_{EBO}	Emitter cut-off current	$V_{EB}=5V, I_C=0$	--	--	100	nA
h_{FE1}	DC current gain	$V_{CE}=1V, I_C=0.1mA$	40	--	--	
h_{FE2}		$V_{CE}=1V, I_C=1mA$	70	--	--	
h_{FE3}		$V_{CE}=1V, I_C=10mA$	100	--	300	
h_{FE4}		$V_{CE}=1V, I_C=50mA$	60	--	--	
$V_{CE(sat)1}$	Collector-emitter saturation voltage	$I_C=10mA, I_B=1mA$	--	--	0.2	V
$V_{CE(sat)2}$		$I_C=50mA, I_B=5mA$	--	--	0.3	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	$V_{CE}=20V, I_C=10mA, f=100MHz$	300	--	--	MHz
C_{ob}	Output capacitance	$V_{CB}=5V, I_E=0, f=1MHz$	--	--	4	pF
C_{ib}	Input capacitance	$V_{EB}=0.5V, I_C=0, f=1MHz$	--	--	8	pF
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	$V_{CC}=3V, I_C=10mA,$	--	--	200	ns
t_f	Fall time	$I_{B1}=I_{B2}=1mA$	--	--	50	ns

Typical Operating Characteristics



Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MMBT3904T	SOT-523	1N	3,000	45,000	180,000	7"reel

SOT-523 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500TYP		0.020TYP	
e1	0.900	1.100	0.035	0.043
L	0.400REF		0.016REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°