



TRANSISTOR (NPN)

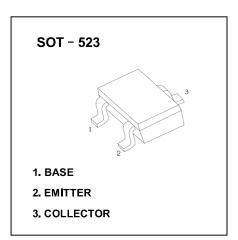
#### FEATURES

- Complementary to MMBT3906T
- Small Package

#### MARKING:1N

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

Symbol	Parameter	Value	Unit
V <sub>сво</sub>	Collector-Base Voltage	60	V
V <sub>CEO</sub>	Collector-Emitter Voltage	40	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
lc	Collector Current	200	mA
Pc	Collector Power Dissipation	150	mW
R <sub>OJA</sub>	Thermal Resistance From Junction To Ambient	833	°C/W
Tj	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	<b>-</b> 55~+150	°C



## ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25<sup>°</sup>C unless otherwise specified)

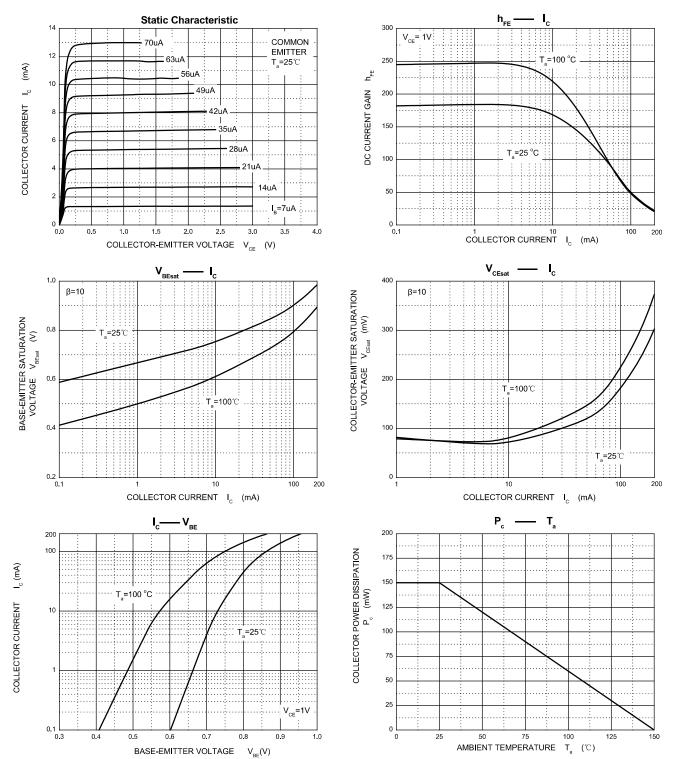
Parameter	Symbol	Test conditions	Min	Тур	Мах	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =10μΑ, I <sub>E</sub> =0	60			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	40			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6			V
Collector cut-off current	ICEX	V <sub>CE</sub> =30V, V <sub>EB(off)</sub> =3V			50	nA
Emitter cut-off current	<b>I</b> EBO	V <sub>EB</sub> =5V, I <sub>C</sub> =0			100	nA
	$h_{FE(1)}$	V <sub>CE</sub> =1V, I <sub>C</sub> =0.1mA	40			
DC current gain	h <sub>FE(2)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =1mA	70			
	$h_{FE(3)}$	V <sub>CE</sub> =1V, I <sub>C</sub> =10mA	100		300	
	$h_{FE(4)}$	V <sub>CE</sub> =1V, I <sub>C</sub> =50mA	60			
Collector-emitter saturation voltage	Very	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA			0.2	V
conector-entitler saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			0.3	V
Collector emitter acturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA	0.65		0.85	V
Collector-emitter saturation voltage		I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			0.95	V
Transition frequency	f⊤	V <sub>CE</sub> =20V,I <sub>C</sub> =10mA, f=100MHz	300			MHz
Collector output capacitance	C <sub>ob</sub>	$V_{CB}$ =5V, I <sub>E</sub> =0, f=1MHz			4	pF
Base input capacitance	C <sub>ib</sub>	V <sub>EB</sub> =0.5V, I <sub>C</sub> =0, f=1MHz			8	pF
Delevitime	+	$V_{CC}$ =3V, $V_{BE(off)}$ =-0.5V I <sub>C</sub> =10mA,		35		
Delay time	t <sub>d</sub>	I <sub>B1</sub> =1mA			- 55	ns
Rise time	+	$V_{CC}$ =3V, $V_{BE(off)}$ =-0.5V I <sub>C</sub> =10mA,		35		
	tr	I <sub>B1</sub> =1mA			35	ns
Storage time	t <sub>s</sub>	V <sub>CC</sub> =3V, I <sub>C</sub> =10mA, I <sub>B1</sub> = I <sub>B2</sub> =1mA			200	ns
Fall time	t <sub>f</sub>	$V_{CC}$ =3V, $I_C$ =10mA, $I_{B1}$ = $I_{B2}$ =1mA			50	ns



**MMBT3904T** 

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## **Typical Characteristics**

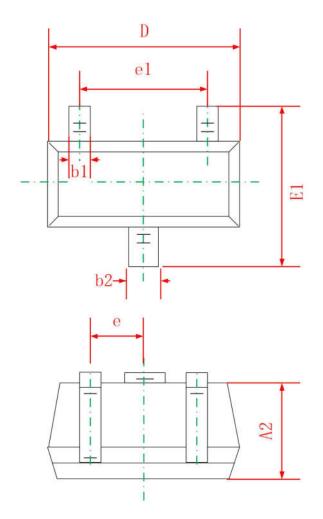


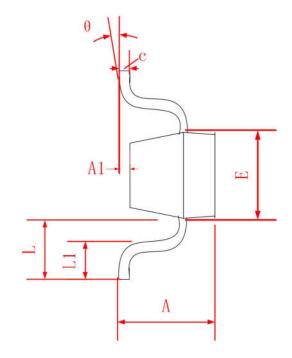




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# SOT-523 Package Outline Dimensions





Symbol	Dimensions In Millimeters			
Symbol	Min	Мах		
A	0.700	0.900		
A1	0.000	0.100		
A2	0.700	0.800		
b1	0.150	0.250		
b2	0.250	0.350		
С	0.100	0.200		
D	1.500	1.700		
E	0.700	0.900		
E1	1.450	1.750		
е	0.500 TYP			
e1	0.900	1.100		
L	0.400 REF			
L1	0.260	0.460		
θ	0°	8°		

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