



Features

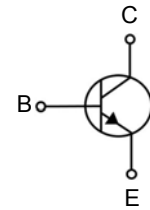
- Collector Current Capability $I_C=0.2A$
- Collector Emitter Voltage $V_{CEO}=40V$

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
SMMBT3904WT1G	SOT-323	K2N	3000



SOT-323



Maximum Ratings ($T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	60	V
Collector - Emitter Voltage	V_{CEO}	40	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_C	200	mA
Collector Power Dissipation	P_C	200	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	625	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature Range	T_{stg}	-55 to 150	

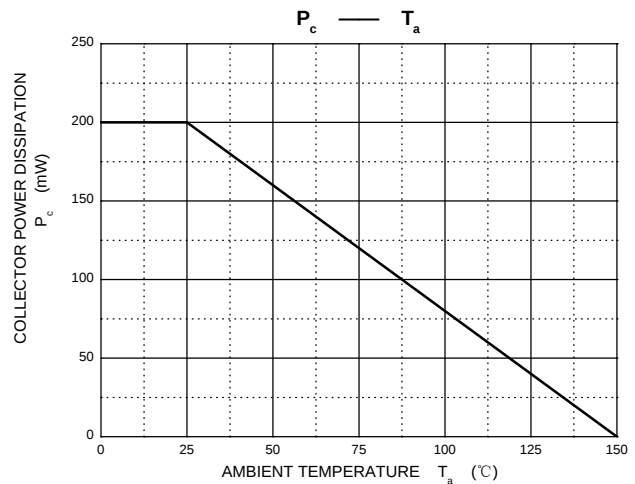
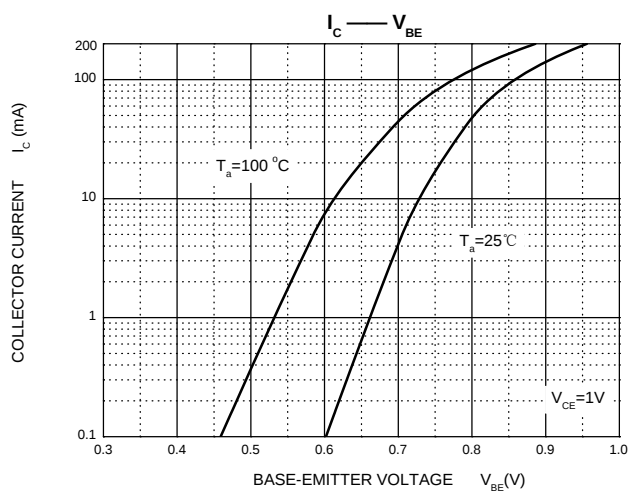
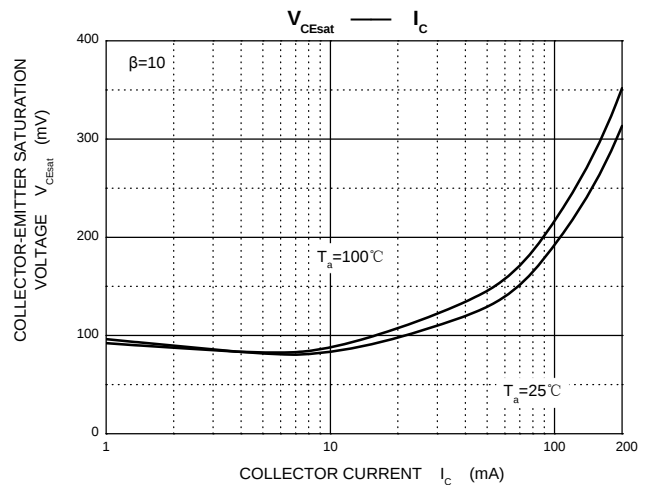
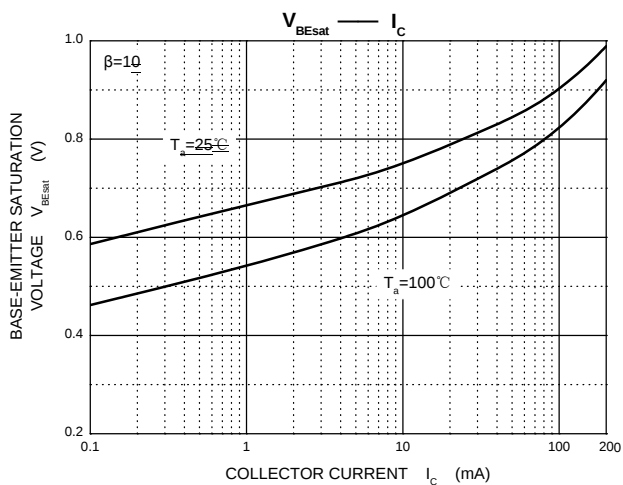
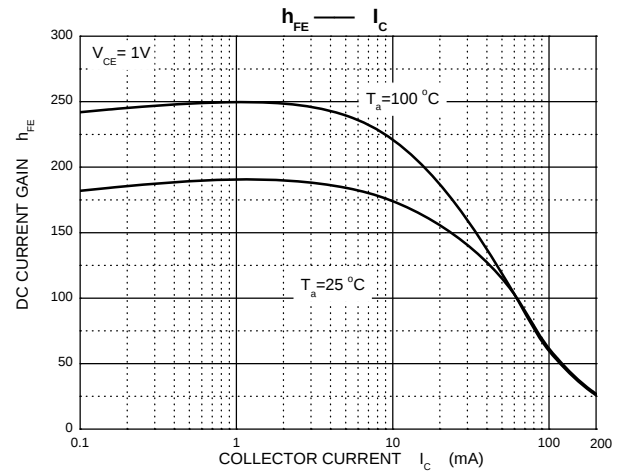
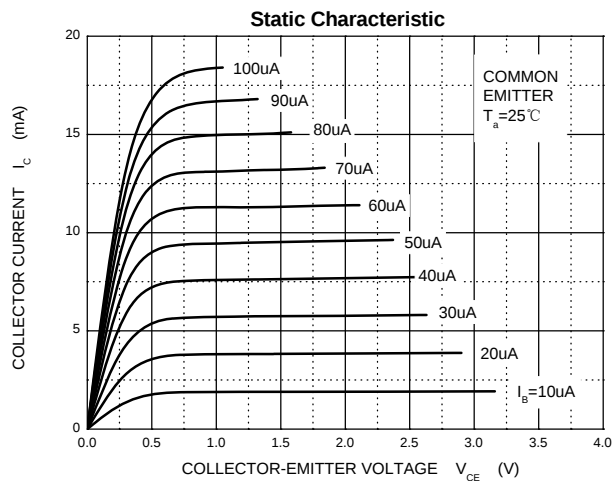
Electrical Characteristics ($T_a=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C=100\mu A, I_E=0$ (Note.1)	60			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C=1mA, I_B=0$ (Note.1)	40			
Emitter - base breakdown voltage	V_{EBO}	$I_E=100\mu A, I_C=0$ (Note.1)	5			
Collector-base cut-off current	I_{CBO}	$V_{CB}=60V, I_E=0$ (Note.1)			60	nA
Collector- emitter cut-off current	I_{CEO}	$V_{CE}=40V, I_E=0$ (Note.1)			700	
Collector- emitter cut-off current	I_{CEX}	$V_{CE}=30V, V_{BE(off)}=3V$			50	
Emitter cut-off current	I_{EBO}	$V_{EB}=5V, I_C=0$			100	
Collector-emitter saturation voltage (Note.1)	$V_{CE(sat)}$	$I_C=10mA, I_B=1mA$			0.25	V
		$I_C=50mA, I_B=5mA$			0.3	
Base - emitter saturation voltage (Note.1)	$V_{BE(sat)}$	$I_C=10mA, I_B=1mA$			0.85	
		$I_C=50mA, I_B=5mA$			0.95	
DC current gain (Note.1)	$h_{FE(1)}$	$V_{CE}=1V, I_C=100\mu A$	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			
Delay time	t_d	$V_{CC}=3V, V_{BE(off)}=0.5V, I_C=10mA, I_{B1}=1mA$			35	nS
Rise time	t_r				35	
Storage time	t_s	$V_{CC}=3V, I_C=10mA, I_{B1}=I_{B2}=1mA$			225	
Fall time	t_f				75	
Collector input capacitance	C_{ib}	$V_{EB}=0.5V, I_E=0, f=1MHz$			8	pF
Collector output capacitance	C_{ob}	$V_{CB}=5V, I_E=0, f=1MHz$			4	
Transition frequency	f_r	$V_{CE}=20V, I_C=10mA, f=100MHz$	300			MHz

Note.1: Pulse test: pulse width $\leq 300\mu s$ duty cycle $\leq 2.0\%$.

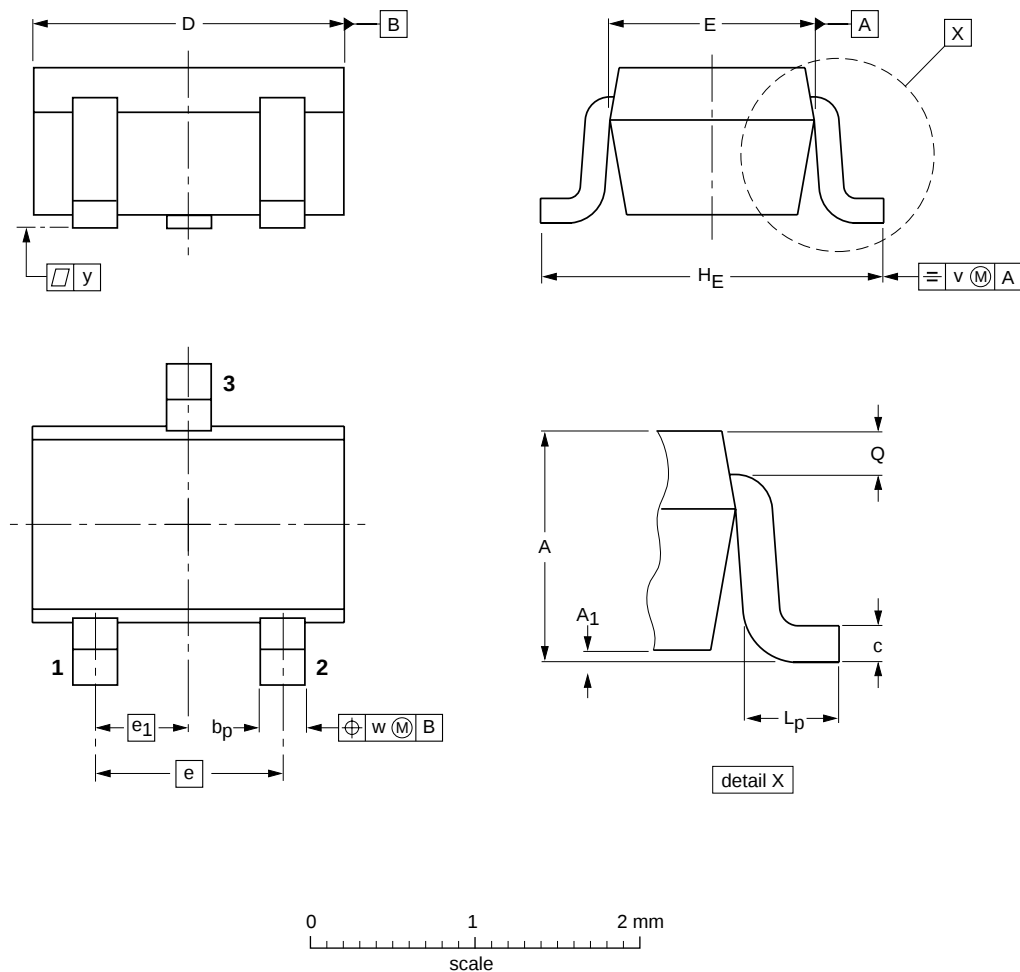


Typical Characteristics





SOT-323 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2



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