

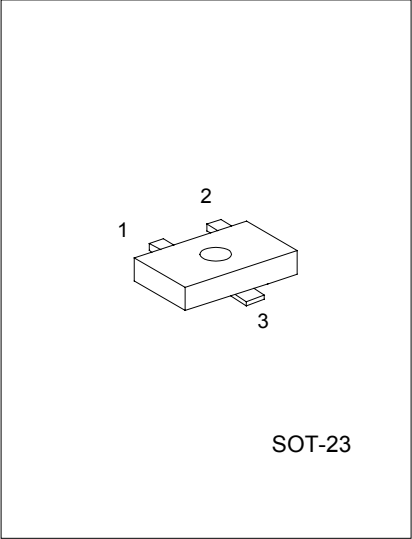
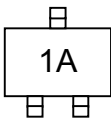
UTC MMBT3904 NPN EPITAXIAL SILICON TRANSISTOR

GENERAL PURPOSE APPLIATION

FEATURES

- *Collector-Emitter Voltage: $V_{CE0}=40V$
- *Collector Dissipation: $P_c(\max)=350mW$
- *Complementary to MMBT3906

MARKING



SOT-23

1:EMITTER 2:BASE 3:COLLECTOR

ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}C$,unless otherwise specified)

PARAMETER	SYMBOL	RATING	UNIT
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	40	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_c	200	mA
Collector dissipation	P_c	350	mW
Junction Temperature	T_j	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS($T_a=25^{\circ}C$,unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-off Current	I_{CEX}	$V_{CE}=30V, V_{EB}=3V$			50	nA
Base Cut-off Current	I_{BL}	$V_{CE}=30V, V_{EB}=3V$			50	nA
Collector-base breakdown voltage	V_{CBO}	$I_c=10\mu A, I_E=0$	60			V
Collector-emitter breakdown voltage (note)	V_{CEO}	$I_c=1mA, I_B=0$	40			V
Emitter-base breakdown voltage	V_{EBO}	$I_E=10\mu A, I_c=0$	6			V
DC current gain (note)	h_{FE1}	$V_{CE}=1V, I_c=0.1mA$	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			
	h_{FE5}	$V_{CE}=1V, I_c=100mA$	30			
Collector-emitter saturation voltage (note)	$V_{CE(sat)1}$	$I_c=10mA, I_B=1mA$			0.2	V
	$V_{CE(sat)2}$	$I_c=50mA, I_B=5mA$			0.3	V

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PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Base-emitter saturation voltage (note)	$V_{BE(sat)1}$ $V_{BE(sat)2}$	$I_C=10mA, I_B=1mA$ $I_C=50mA, I_B=5mA$	0.65		0.85 0.95	V
Current gain bandwidth product	f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300			MHz
Output Capacitance	C_{ob}	$V_{CB}=5V, I_E=0, f=1MHz$			4	pF
Turn on time	t_{ON}	$V_{CC}=3V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1mA$			70	ns
Turn off time	t_{OFF}	$I_{B1}=I_{B2}=1mA$			250	ns

Note: Pulse test: $PW \leq 300\mu s$, Duty Cycle $\leq 2\%$

