



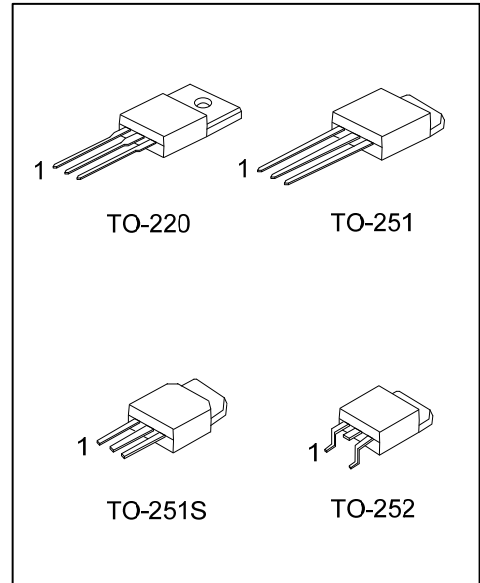
2SD1804

NPN SILICON TRANSISTOR

HIGH CURRENT SWITCHING APPLICATIONS

FEATURES

- * Low collector-to-emitter saturation voltage
- * High current and high f_T
- * Excellent linearity of h_{FE}
- * Fast switching time
- * Small and slim package making it easy to make UTC 2SD1804 applied sets smaller



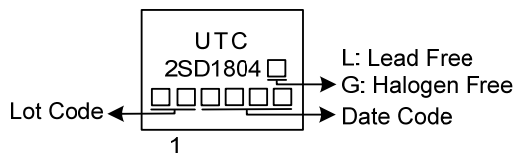
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SD1804L-x-TA3-T	2SD1804G-x-TA3-T	TO-220	B	C	E	Tube
2SD1804L-x-TM3-T	2SD1804G-x-TM3-T	TO-251	B	C	E	Tube
2SD1804L-x-TMS-T	2SD1804G-x-TMS-T	TO-251S	B	C	E	Tube
2SD1804L-x-TN3-R	2SD1804G-x-TN3-R	TO-252	B	C	E	Tape Reel

Note: Pin Assignment: B: Base C: Collector E: Emitter

	(1) Packing Type	(1) T: Tube, R: Tape Reel
	(2) Package Type	(2) TA3: TO-220, TM3: TO-251, TMS: TO-251S
	(3) Rank	TN3: TO-252
	(4) Green Package	(3) x: refer to Classification of h_{FE1}
		(4) G: Halogen Free and Lead Free, L: Lead Free

MARKING



■ **ABSOLUTE MAXIMUM RATING** ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
Collector-Base Voltage			V _{CBO}	60	V
Collector-Emitter Voltage			V _{CEO}	50	V
Emitter-Base Voltage			V _{EBO}	6	V
Collector Current			I _C	8	A
Collector Current(PULSE)			I _{C(PULSE)}	12	A
Collector Dissipation	T _A =25°C	TO-220	P _D	2	W
		TO-251/TO-251S		1	W
		TO-252			
	T _C =25°C	TO-220		65	W
		TO-251/TO-251S		20	W
		TO-252			
Junction Temperature			T _J	+150	°C
Storage Temperature			T _{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

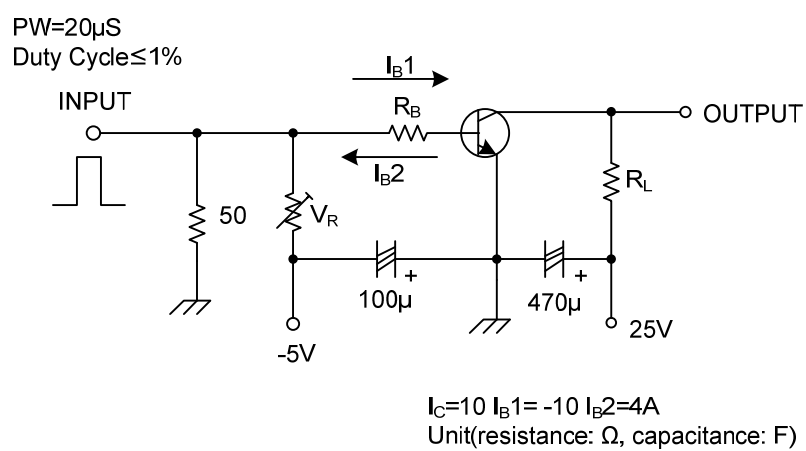
■ **ELECTRICAL CHARACTERISTICS** ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C=10\mu\text{A}$, $I_E=0$	60			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=1\text{mA}$, $R_{BE}=\infty$	50			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E=10\mu\text{A}$, $I_C=0$	6			V
Collector Cutoff Current	I_{CBO}	$V_{CB}=40\text{V}$, $I_E=0$			1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}$, $I_C=0$			1	μA
DC Current Gain	h_{FE1}	$V_{CE}=2\text{V}$, $I_C=0.5\text{A}$	70		400	
	h_{FE2}	$V_{CE}=2\text{V}$, $I_C=6\text{A}$	35			
Gain-Bandwidth Product	f_T	$V_{CE}=5\text{V}$, $I_C=1\text{A}$		180		MHz
Output Capacitance	C_{ob}	$V_{CE}=10\text{V}$, $f=1\text{MHz}$		65		pF
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=4\text{A}$, $I_B=0.2\text{A}$		200	400	mV
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=4\text{A}$, $I_B=0.2\text{A}$		0.95	1.3	V
Storage Time	t_{STG}	See test circuit		500		ns
Fall Time	t_F	See test circuit		20		ns

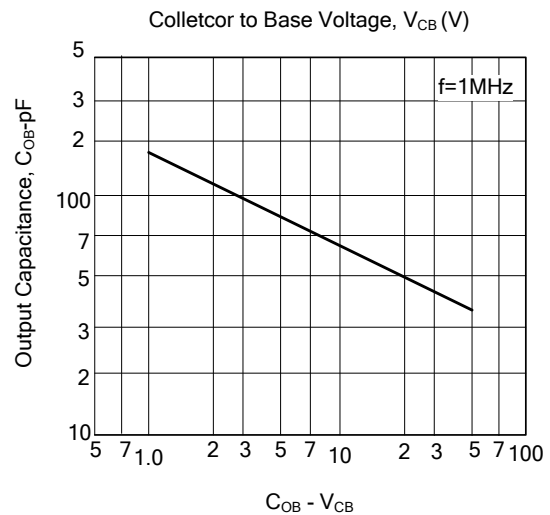
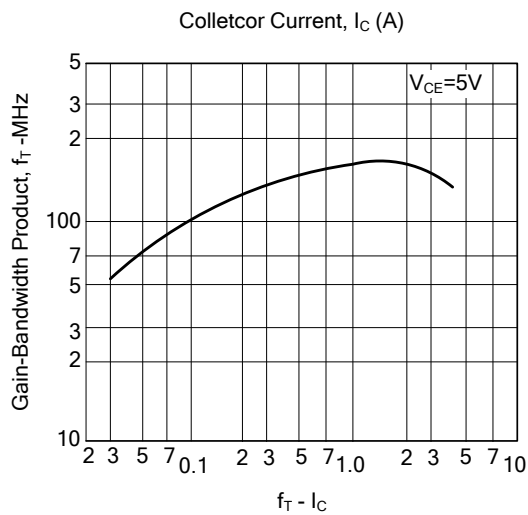
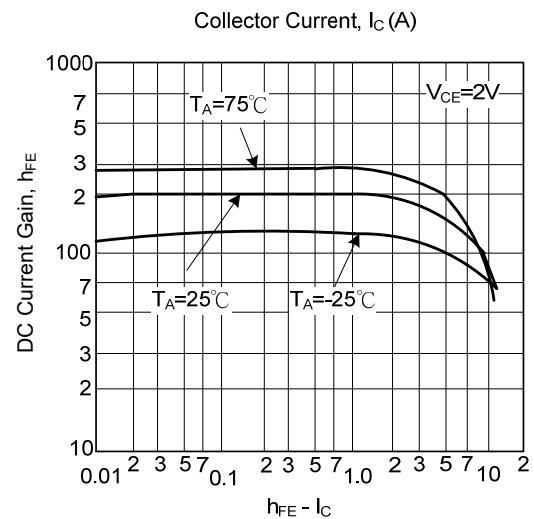
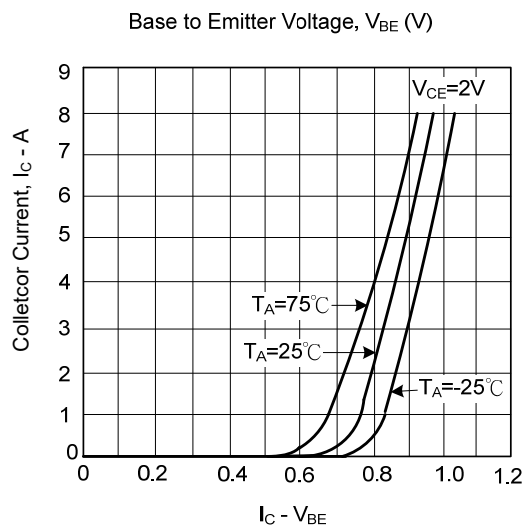
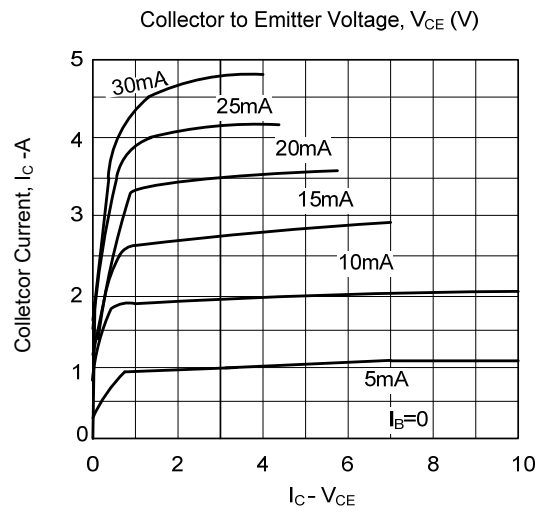
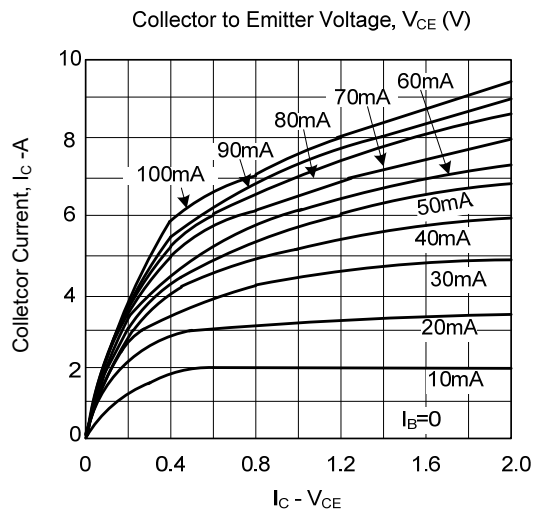
■ **CLASSIFICATION OF h_{FE1}**

RANK	Q	R	S	T
RANGE	70-140	100-200	140-280	200-400

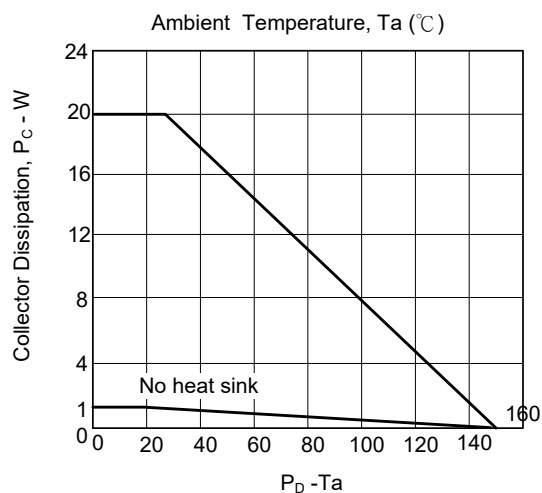
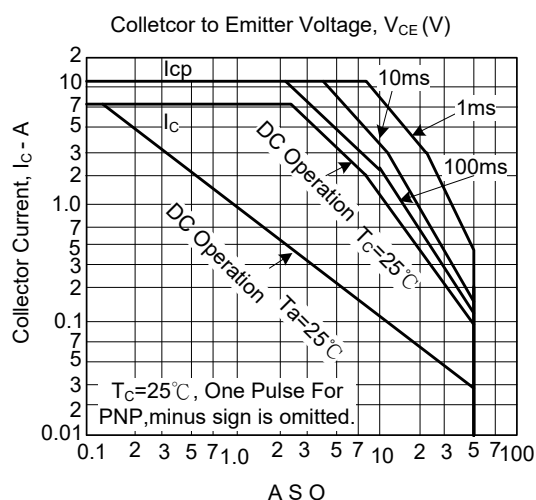
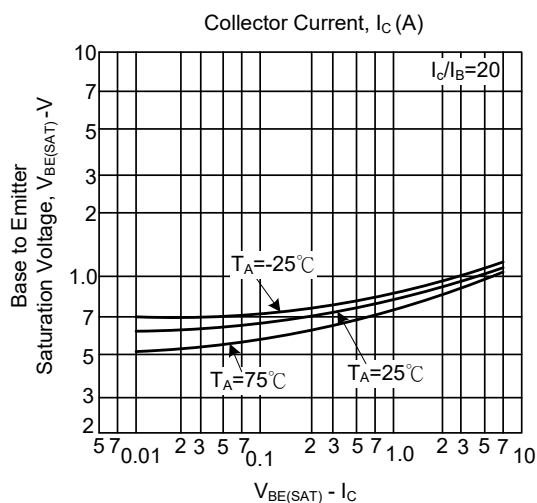
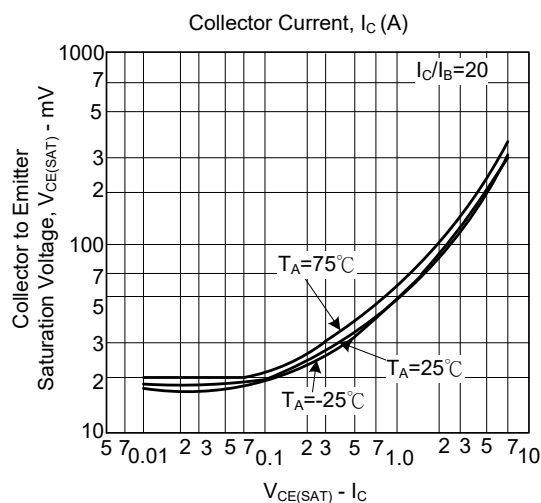
■ TEST CIRCUIT



TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.