



## 2SD1802

NPN SILICON TRANSISTOR

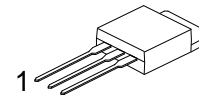
### HIGH CURRENT SWITCHING APPLICATION

#### DESCRIPTION

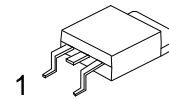
The UTC 2SD1802 applies to voltage regulators, relay drivers, lamp drivers and electrical equipment.

#### FEATURES

- \* Adoption of FBET, MBIT processes
- \* Large current capacity and wide ASO
- \* Low collector-to-emitter saturation voltage
- \* Fast switching speed



TO-251



TO-252

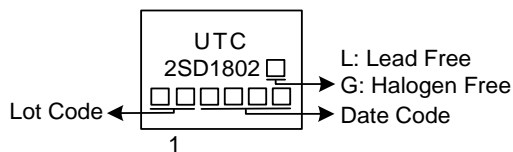
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SD1802L-x-TM3-T	2SD1802G-x-TM3-T	TO-251	B	C	E	Tube
2SD1802L-x-TN3-R	2SD1802G-x-TN3-R	TO-252	B	C	E	Tape Reel

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

<p>2SD1802G-x-TM3-T</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Green Package</p>	<p>(1) T: Tube, R: Tape Reel (2) TM3: TO-251, TN3: TO-252 (3) x: refer to Classification of <math>h_{FE}</math> (4) G: Halogen Free and Lead Free, L: Lead Free</p>
---	---

#### MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	$V_{CB0}$	60	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Power Dissipation	$P_C$	$T_A=25^{\circ}\text{C}$	1
		$T_C=25^{\circ}\text{C}$	15
Collector Current (DC)	$I_C$	3	A
Collector Current (PULSE)	$I_{CP}$	6	A
Junction Temperature	$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

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.

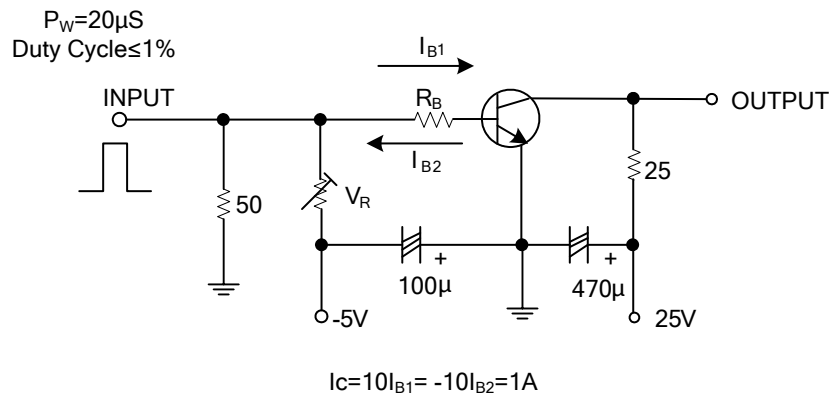
■ **ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cutoff Current	$I_{CB0}$	$V_{CB}=40\text{V}, I_E=0$			1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0$			1	$\mu\text{A}$
DC Current Gain (note)	$h_{FE1}$	$V_{CE}=2\text{V}, I_C=100\text{mA}$	100		560	
	$h_{FE2}$	$V_{CE}=2\text{V}, I_C=3\text{A}$	35			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10\text{V}, I_C=50\text{mA}$		150		MHz
Output Capacitance	$C_{OB}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		25		pF
C-E Saturation Voltage	$V_{CE(SAT)}$	$I_C=2\text{A}, I_B=100\text{mA}$		0.19	0.5	V
B-E Saturation Voltage	$V_{BE(SAT)}$	$I_C=2\text{A}, I_B=100\text{mA}$		0.94	1.2	V
C-B Breakdown Voltage	$V_{(BR)CB0}$	$I_C=10\mu\text{A}, I_E=0$	60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	50			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	6			V
Turn-on Time	$t_{ON}$	See test circuit		70		ns
Storage Time	$t_{STG}$	See test circuit		650		ns
Fall Time	$t_F$	See test circuit		35		ns

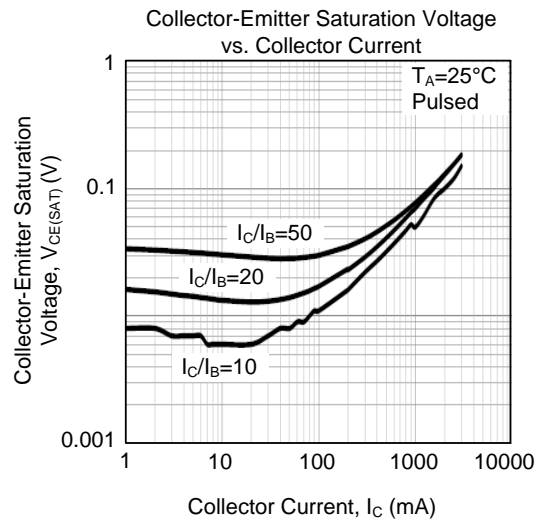
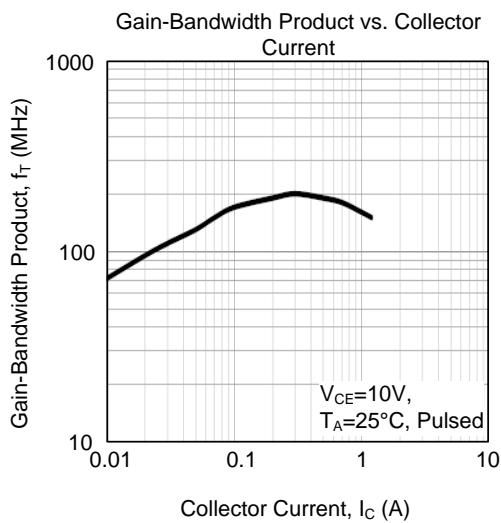
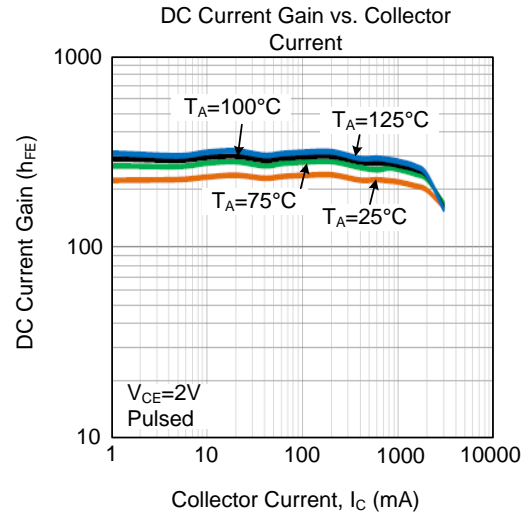
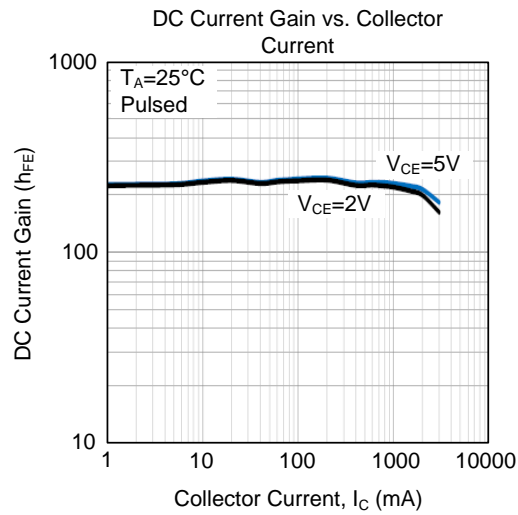
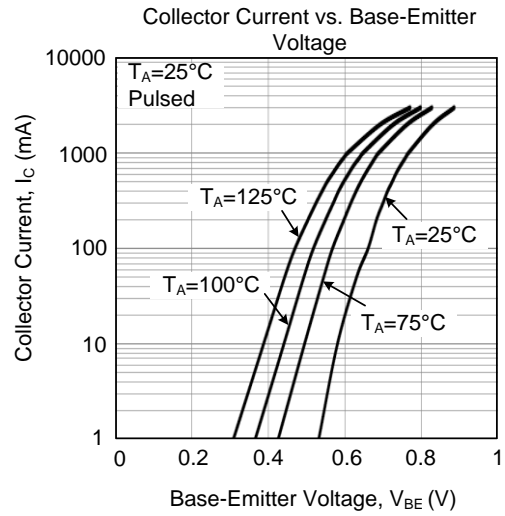
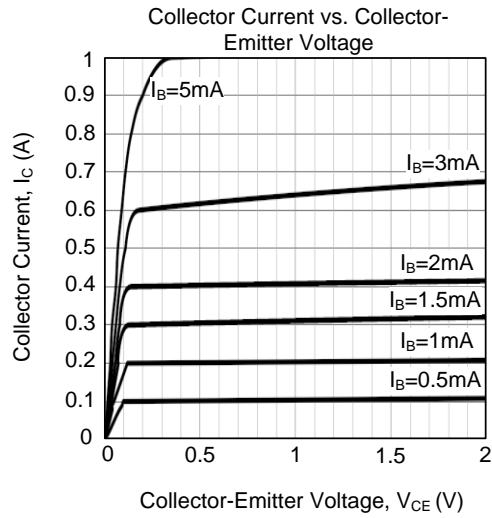
■ **CLASSIFICATION OF  $h_{FE1}$**

RANK	R	S	T	U
RANGE	100-200	140-280	200-400	280-560

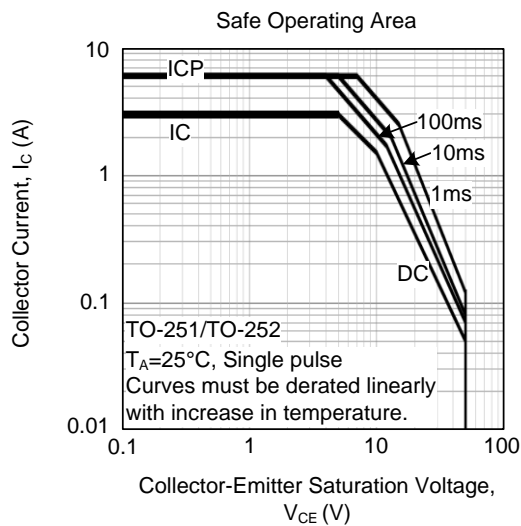
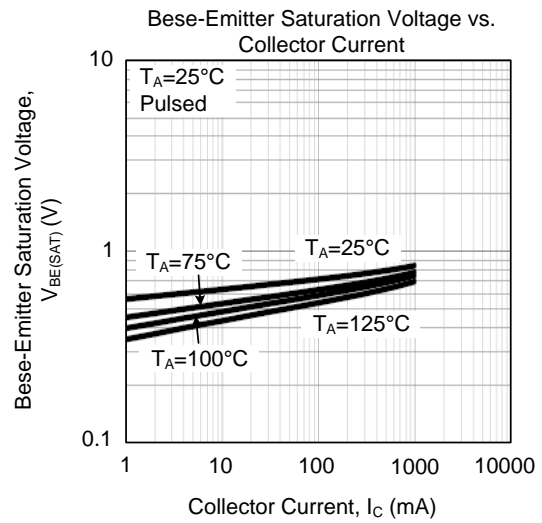
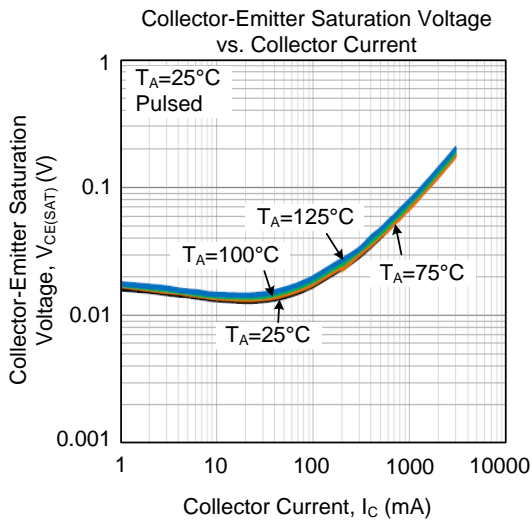
■ **TEST CIRCUIT** (Unit : resistance :  $\Omega$ , capacitance : F)



## ■ TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS



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.