



## 2SD1802

**NPN SILICON TRANSISTOR**

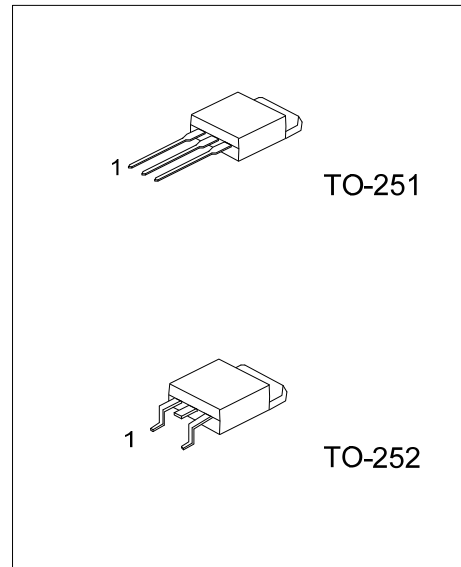
### HIGH CURRENT SWITCHING APPLICATION

#### 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



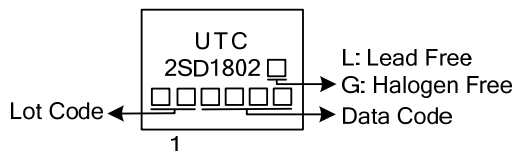
#### ORDERING INFORMATION

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-T	2SD1802G-x-TN3-T	TO-252	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>2SD1802L-x-TM3-T</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TM3: TO-251, TN3: TO-252</p> <p>(3) x: refer to Classification of <math>h_{FE}</math></p> <p>(4) L: Lead Free, G: Halogen Free and Lead Free</p>
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#### 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	$P_C$	1	W
$T_C=25^{\circ}\text{C}$		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.

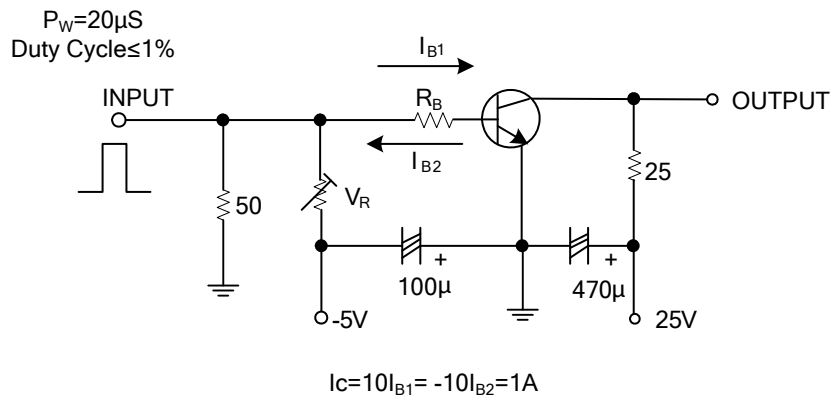
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=40\text{V}, I_E=0$			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	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	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)



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