



# 2SD1803

## NPN EPITAXIAL SILICON TRANSISTOR

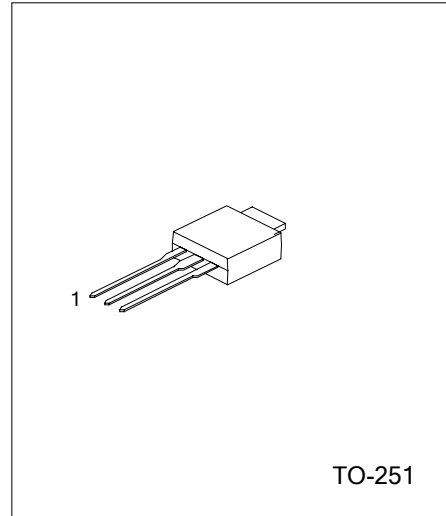
### HIGH CURRENT SWITCHING APPLICATION

■ DESCRIPTION

The UTC 2SD1803 applies to relay drivers, high-speed inverters, converters ,and other general high-current switching applications.

■ FEATURES

- \*Low collector-to-emitter saturation voltage.
- \*High current and high  $f_T$ .
- \*Excellent linerarity of  $h_{FE}$ .
- \*Fast switching time.



\*Pb-free plating product number:2SD1803L

■ PIN CONFIGURATION

PIN NO.	PIN NAME
1	BASE
2	COLLECTOR
3	EMITTER

■ ORDERING INFORMATION

Order Number		Package	Packing
Normal	Lead free		
2SD1803-TM3-T	2SD1803L-TM3-T	TO-251	Tube

■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT	
Collector-Base Voltage	V <sub>CBO</sub>	60	V	
Collector-Emitter Voltage	V <sub>CEO</sub>	50	V	
Emitter-Base Voltage	V <sub>EBO</sub>	6	V	
Collector Current	DC	I <sub>C</sub>	5	A
	PULSE	I <sub>CM</sub>	8	A
Power Dissipation	T <sub>C</sub> =25°C	P <sub>D</sub>	20	W
	T <sub>a</sub> =25°C		1	W
Junction Temperature	T <sub>J</sub>	+150	°C	
Storage Temperature	T <sub>STG</sub>	-40 ~ +150	°C	

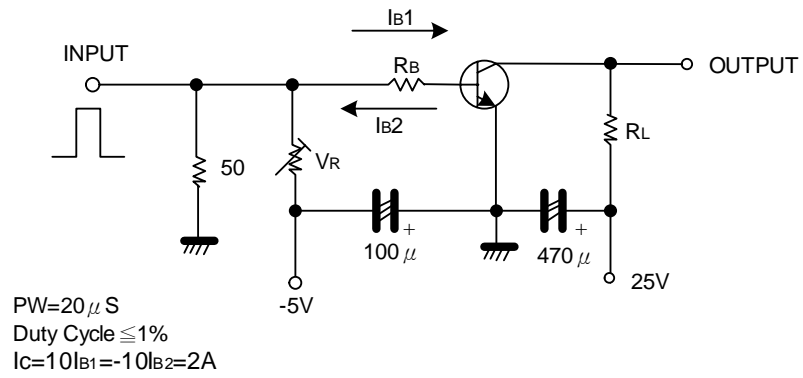
■ ELECTRICAL CHARACTERISTICS (Ta= 25°C, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	I <sub>C</sub> =10μA, I <sub>E</sub> =0	60			V
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞	50			V
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6			V
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =40V, I <sub>E</sub> =0			1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =4V, I <sub>C</sub> =0			1	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =0.5A	70		400	
	h <sub>FE2</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =4A	35			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =1A		180		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, f=1MHz		40		pF
C-E Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =3A, I <sub>B</sub> =0.15A		220	400	mV
B-E Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =3A, I <sub>B</sub> =0.15A		0.95	1.3	V
Turn-on Time	t <sub>ON</sub>	See Test Circuit		50		ns
Storage Time	t <sub>S</sub>	See Test Circuit		500		ns
Fall Time	t <sub>F</sub>	See Test Circuit		20		ns

■ CLASSIFICATION OF h<sub>FE</sub> 1

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

### ■ TEST CIRCUIT



(Unit : (resistance :  $\Omega$ , capacitance : F))

## ■ TYPICAL CHARACTERISTICS

