



UNISONIC TECHNOLOGIES CO., LTD

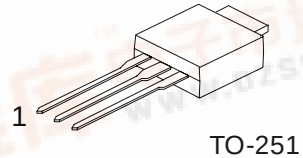
2SD1804

NPN SILICON TRANSISTOR

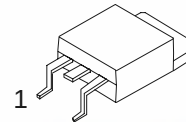
HIGH CURRENT SWITCHING APPLICATIONS

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.



TO-251



TO-252

*Pb-free plating product number: 2SD1804L

ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
2SD1804-x-TM3-T	2SD1804L-x-TM3-T	TO-251	B	C	E	Tube
2SD1804-x-TN3-R	2SD1804L-x-TN3-R	TO-252	B	C	E	Tape Reel
2SD1804-x-TN3-T	2SD1804L-x-TN3-T	TO-252	B	C	E	Tube

2SD1804L-x-TM3-T	(1)Packing Type	(1) R: Tape Reel, T: Tube
	(2)Package Type	(2) TM3: TO-251, TN3: TO-252
	(3)Rank	(3) x: refer to Classification of h_{FE1}
	(4)Lead Plating	(4) L: Lead Free Plating, Blank: Pb/Sn

■ **ABSOLUTE MAXIMUM RATING** (Ta=25°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 Dissipation	P_D	1	W
	$T_C=25^{\circ}\text{C}$	20	W
Collector Current	I_C	8	A
Collector Current(PULSE)	$I_{C(PULSE)}$	12	A
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.

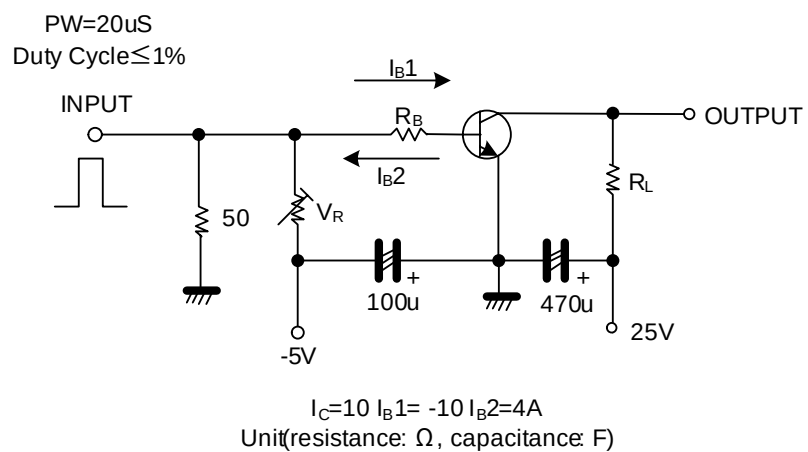
■ **ELECTRICAL CHARACTERISTICS** (Ta=25°C, unless otherwise specified)

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

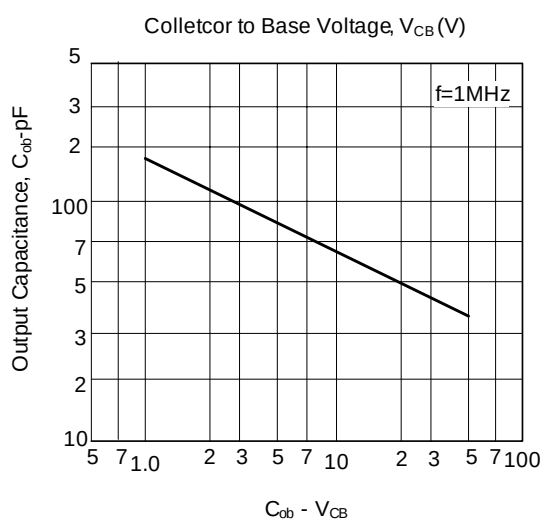
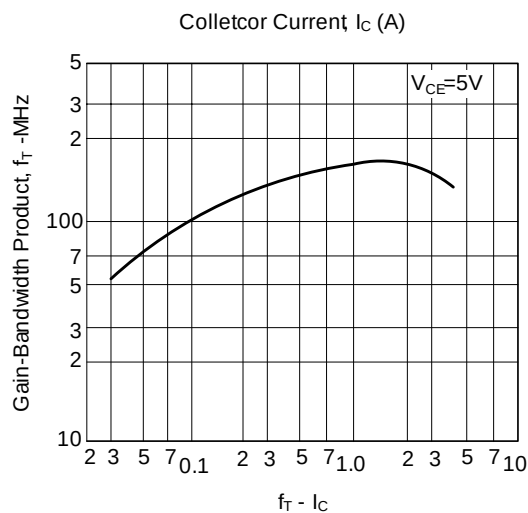
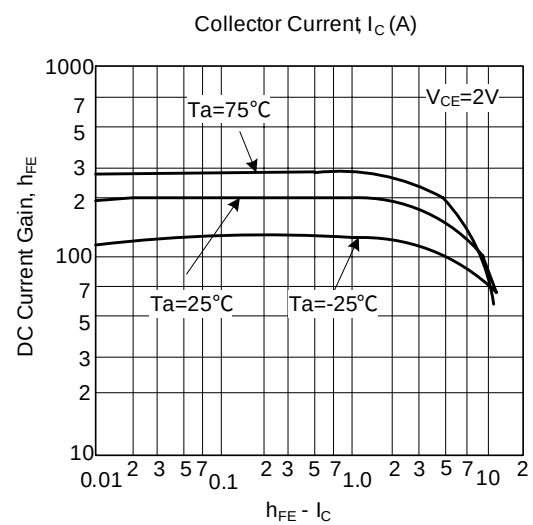
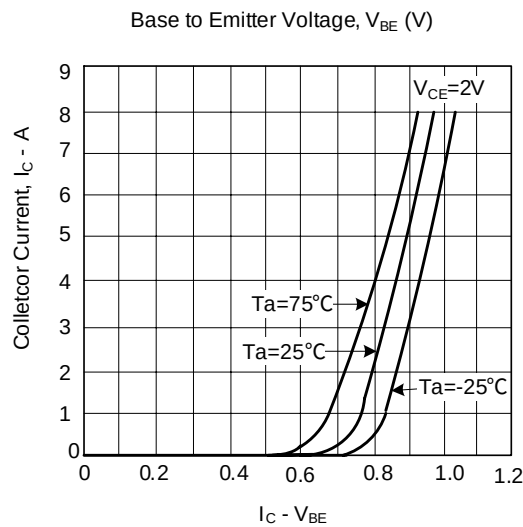
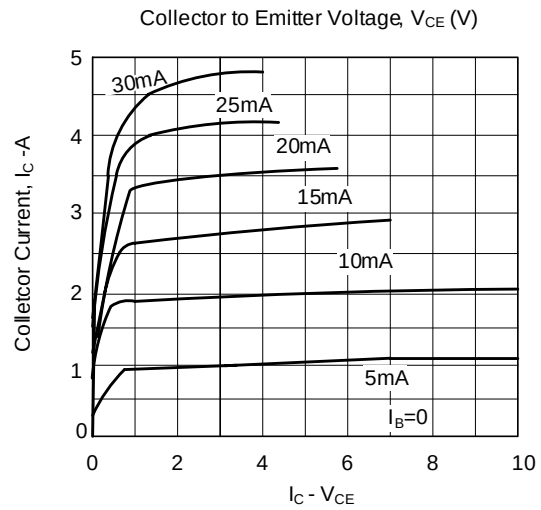
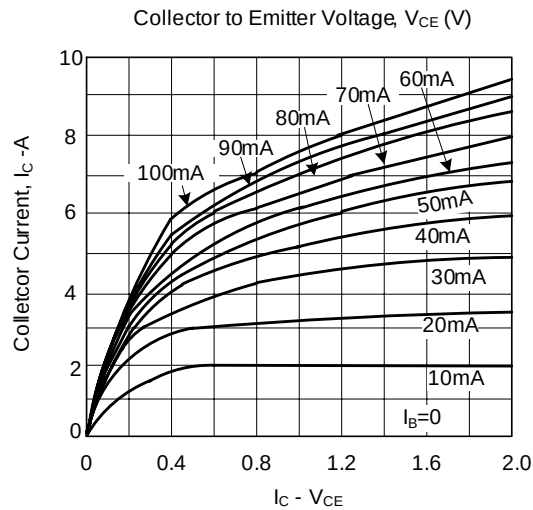
■ **CLASSIFICATION OF h_{FE1}**

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

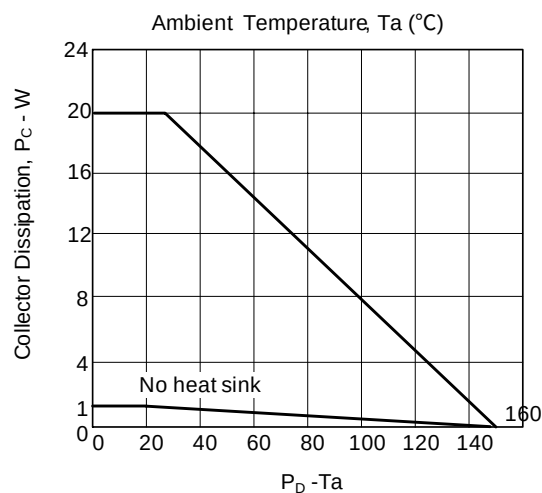
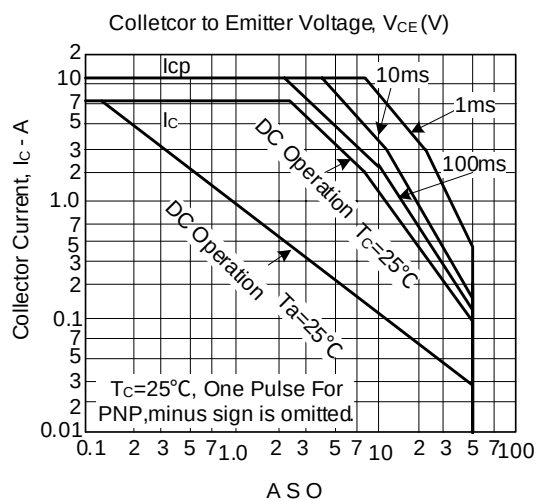
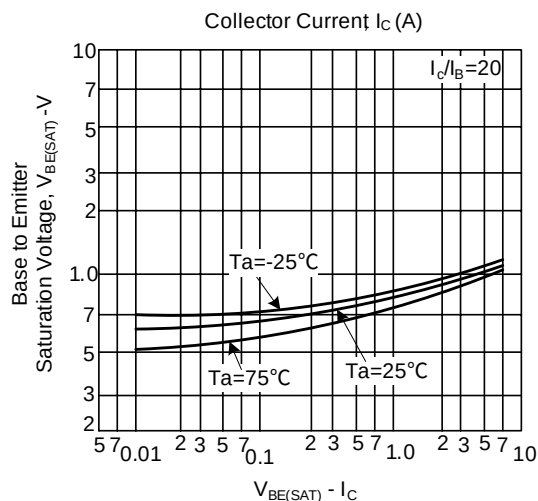
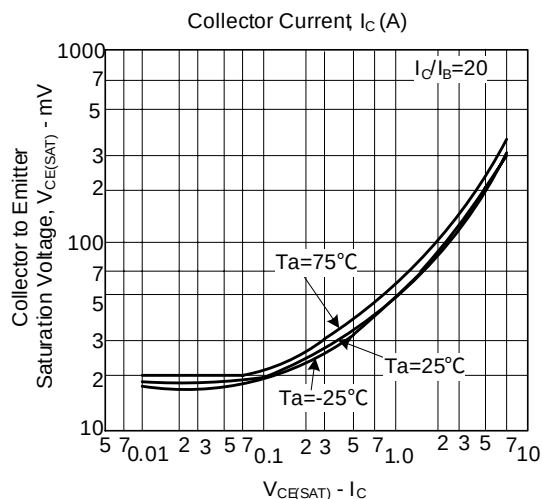
■ TEST CIRCUIT



TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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