



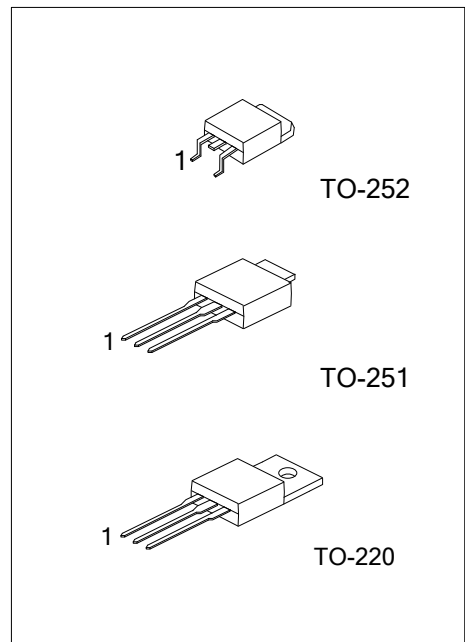
2SD1804

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
Normal	Lead Free	Halogen Free		1	2	3	
2SD1804-x-TA3-T	2SD1804L-x-TA3-T	2SD1804G-x-TA3-T	TO-220	B	C	E	Tube
2SD1804-x-TM3-T	2SD1804L-x-TM3-T	2SD1804G-x-TM3-T	TO-251	B	C	E	Tube
2SD1804-x-TN3-R	2SD1804L-x-TN3-R	2SD1804G-x-TN3-R	TO-252	B	C	E	Tape Reel

<p>2SD1804L-x-TA3-T</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TA3: TO-220, TM3: TO-251, TN3: TO-252</p> <p>(3) x: refer to Classification of h_{FE1}</p> <p>(4) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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■ 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	$T_A=25^\circ\text{C}$	TO-220	2	W
		TO-251/TO-252	1	
	$T_C=25^\circ\text{C}$	TO-220	65	W
		TO-251/TO-252	20	
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.

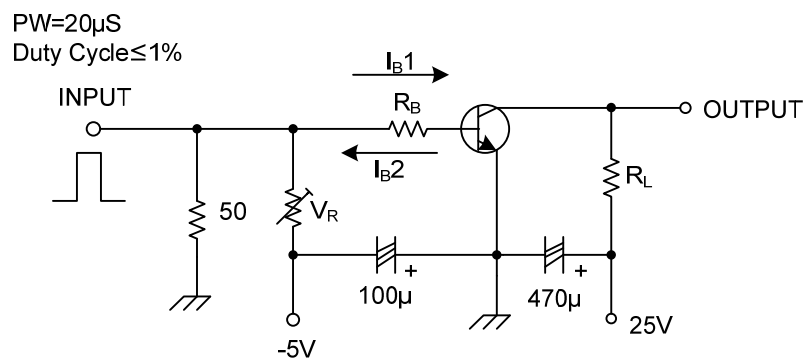
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-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}

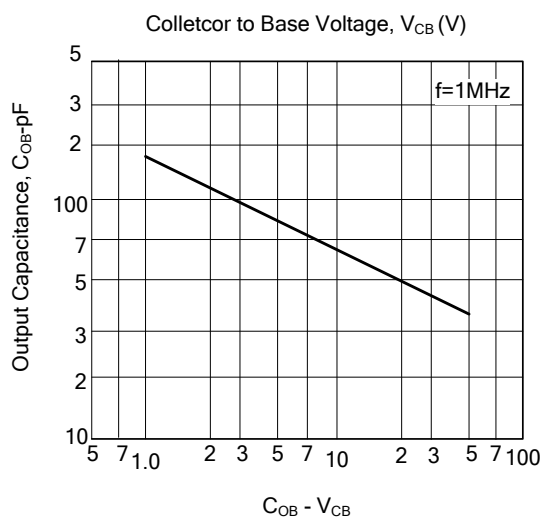
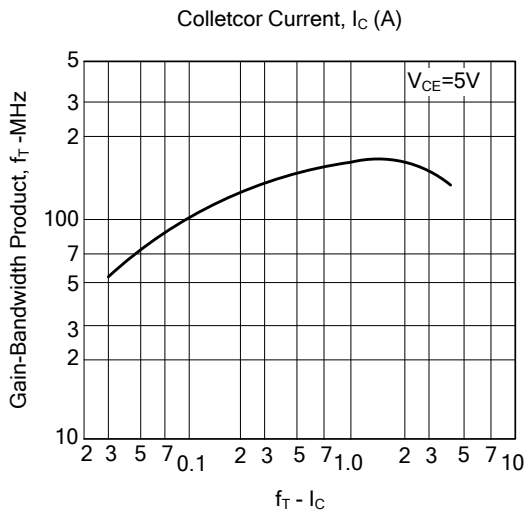
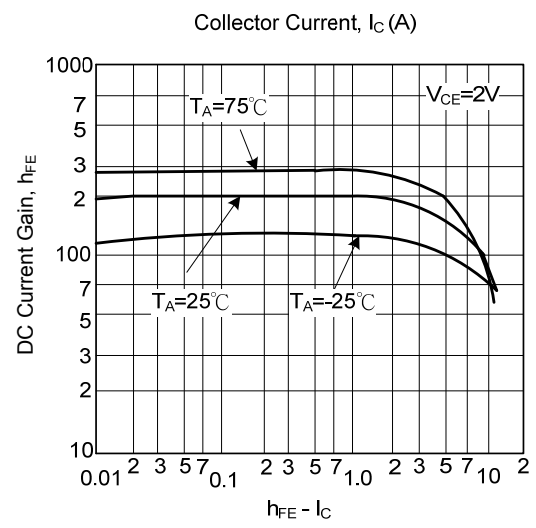
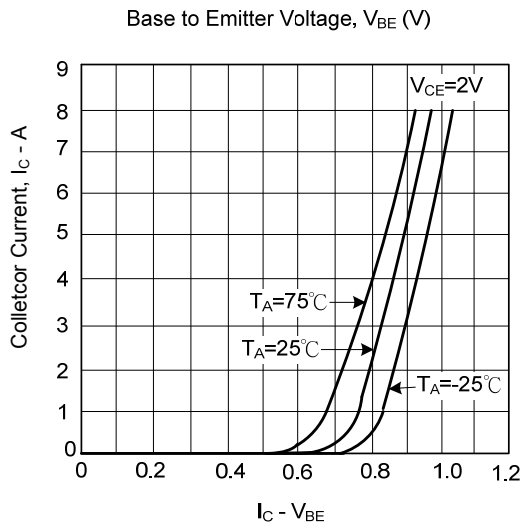
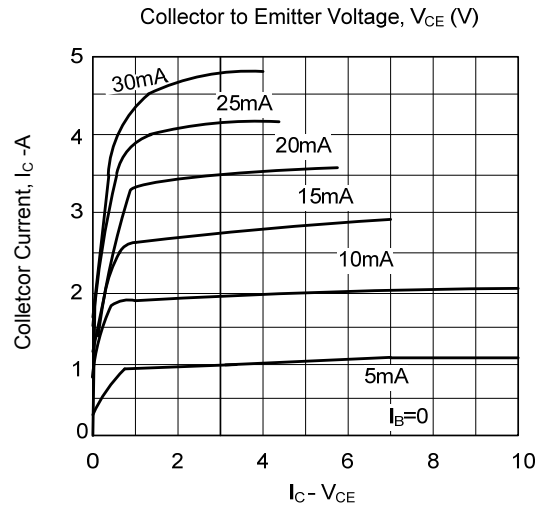
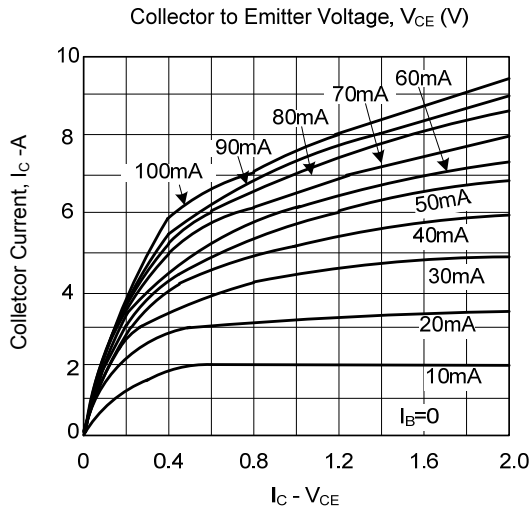
RANK	Q	R	S	T
RANGE	70-140	100-200	140-280	200-400

■ TEST CIRCUIT

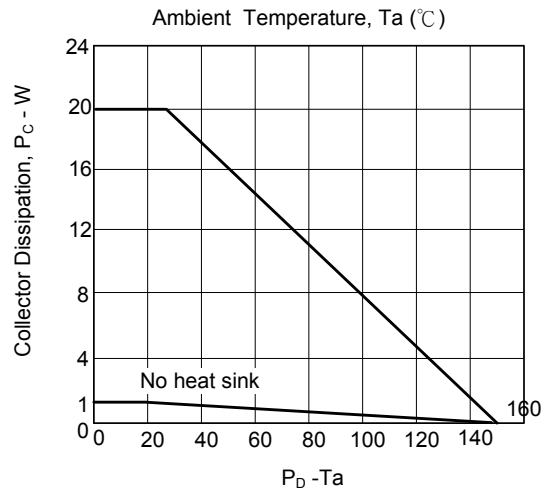
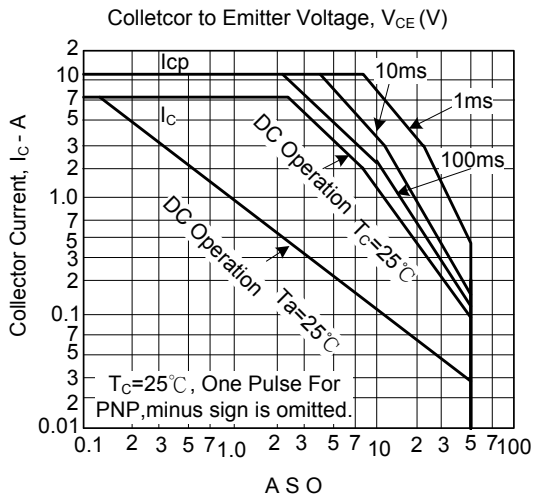
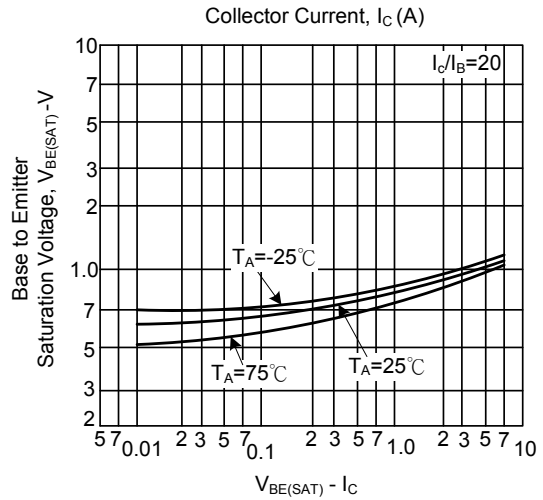
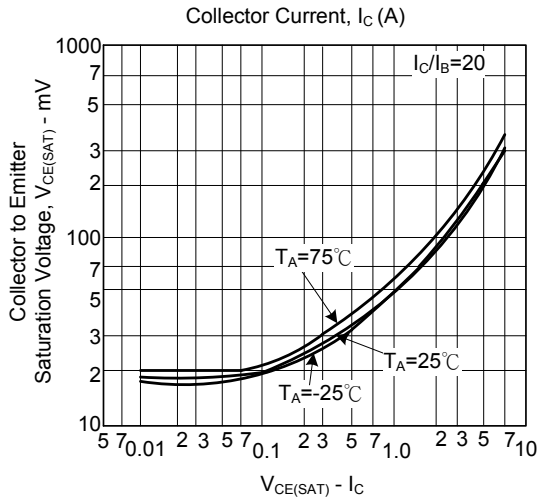


$I_C=10 I_{B1} = -10 I_{B2}=4A$
Unit(resistance: Ω , capacitance: F)

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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