



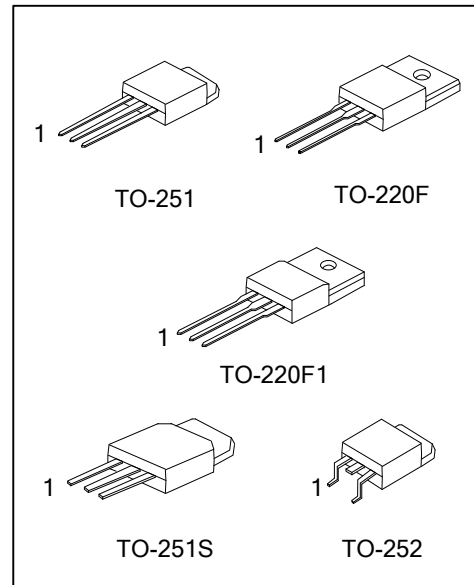
2SD1816

NPN PLANAR TRANSISTOR

HIGH CURRENT SWITCHING APPLICATIONS

FEATURES

- * Low collector-to-emitter saturation voltage
- * Good linearity of h_{FE}
- * Small and slim package facilitating compactness of sets.
- * High f_T
- * Fast switching speed



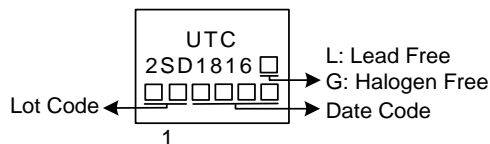
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SD1816L-x-TF1-T	2SD1816G-x-TF1-T	TO-220F1	B	C	E	Tube
2SD1816L-x-TF3-T	2SD1816G-x-TF3-T	TO-220F	B	C	E	Tube
2SD1816L-x-TM3-T	2SD1816G-x-TM3-T	TO-251	B	C	E	Tube
2SD1816L-x-TMS-T	2SD1816G-x-TMS-T	TO-251S	B	C	E	Tube
2SD1816L-x-TN3-R	2SD1816G-x-TN3-R	TO-252	B	C	E	Tape Reel

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

<p>2SD1816G-x-TF3-T</p>	<p>(1) T: Tube, R: Tape Reel (2) TF1: TO-220F1, TF3: TO-220F, TM3: TO-251, TMS: TO-251S, TN3: TO-252 (3) x: refer to Classification of h_{FE1} (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V _{CBO}	120	V
Collector-Emitter Voltage		V _{CEO}	100	V
Emitter-Base Voltage		V _{EBO}	6	V
Collector Current	DC	I _C	4	A
	PULSE(Note 2)		8	A
Collector Power Dissipation	TO-251/TO-251S	P _D	1	W
	TO-252			
	TO-220F/TO-220F1		2	W
Junction Temperature		T _J	+150	°C
Storage Temperature		T _{STG}	-40 ~ +150	°C

Notes: 1. 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.
 2. Duty=1/2, Pw=20ms.

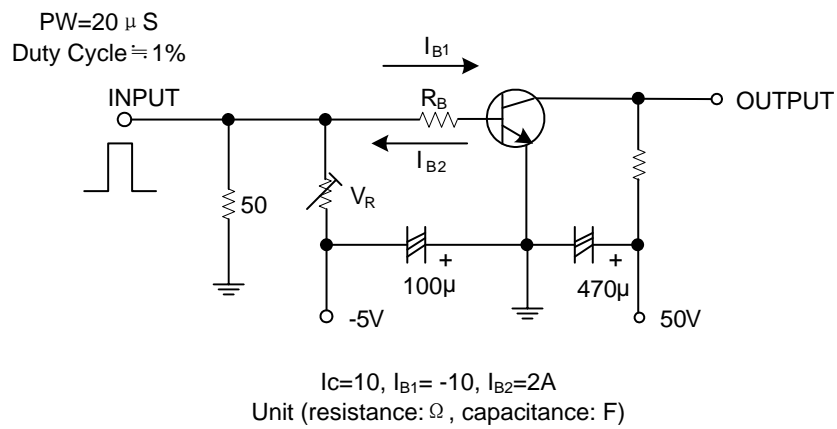
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Base Breakdown Voltage	BV _{CBO}	I _C = 10μA, I _E = 0	120			V
Collector Emitter Breakdown Voltage	BV _{CEO}	I _C = 1mA, R _B = ∞	100			V
Emitter Base Breakdown Voltage	BV _{EBO}	I _E = 10μA, I _C = 0	6			V
Base-Emitter Saturation Voltage	V _{BE(SAT)}	I _C = 2A, I _B = 0.2A		0.9	1.2	V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	I _C = 2A, I _B = 0.2A		150	400	mV
Collector Cut-Off Current	I _{CBO}	V _{CB} = 100 V, I _E = 0			1	μA
Emitter Cut-Off Current	I _{EBO}	V _{EB} = 4V, I _C = 0			1	μA
DC Current Transfer Ratio	h _{FE1}	V _{CE} = 5V, I _C = 0.5A	70		560	
	h _{FE2}	V _{CE} = 5V, I _C = 3A	40			
Transition Frequency	f _T	V _{CE} = 10V, I _C = 0.5A		180		MHz
Output Capacitance	C _{ob}	V _{CB} = 10V, I _E = 0A, f = 1MHz		40		pF
Turn-on Time	t _{ON}	See test circuit		100		ns
Storage Time	t _{STG}	See test circuit		900		ns
Fall Time	t _F	See test circuit		50		ns

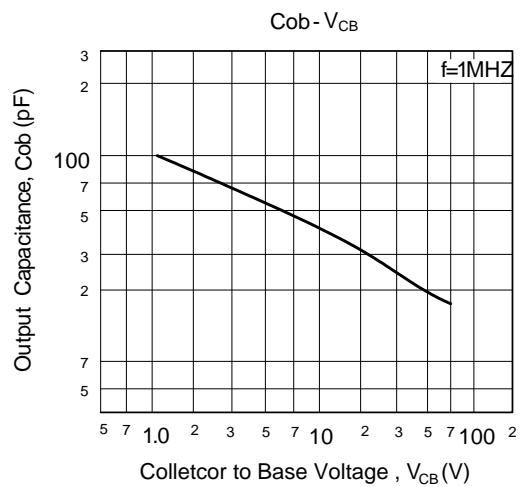
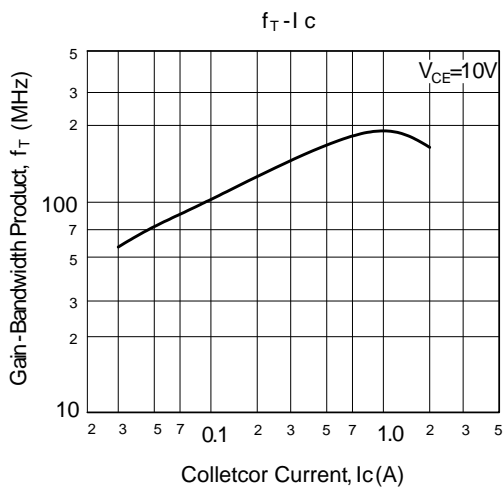
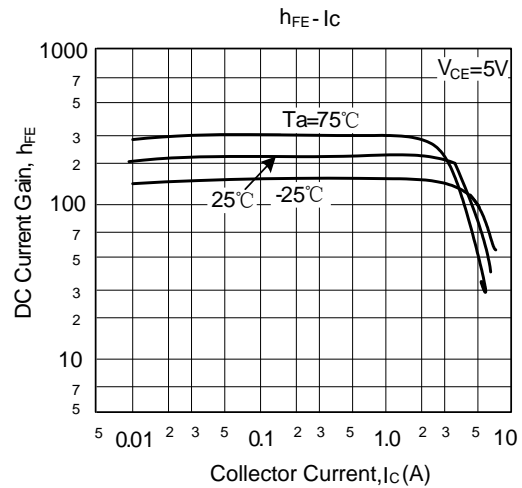
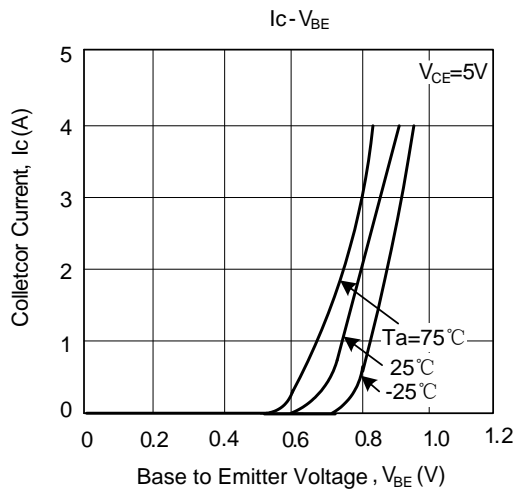
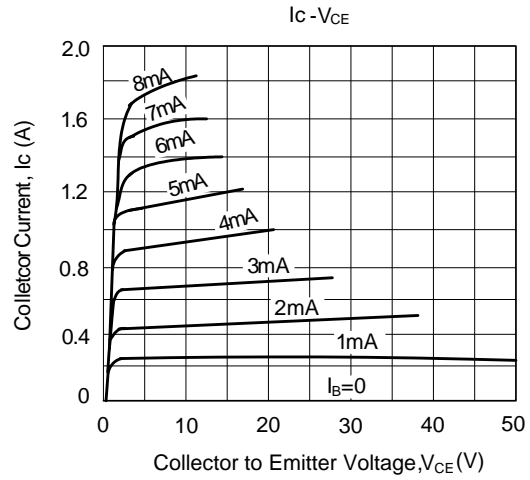
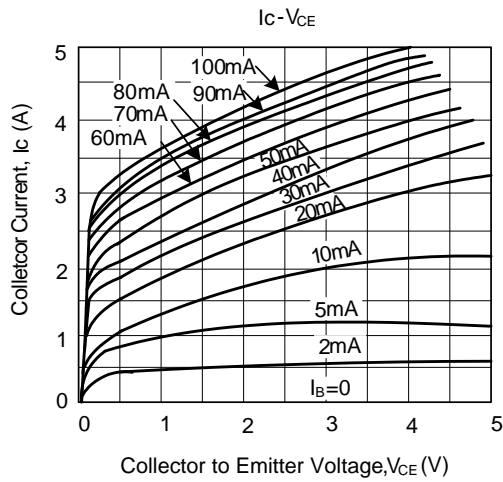
■ CLASSIFICATION of h_{FE1}

RANK	Q	R	S	T	H
RANGE	70 - 140	100 - 200	140 - 280	200 - 400	270 - 560

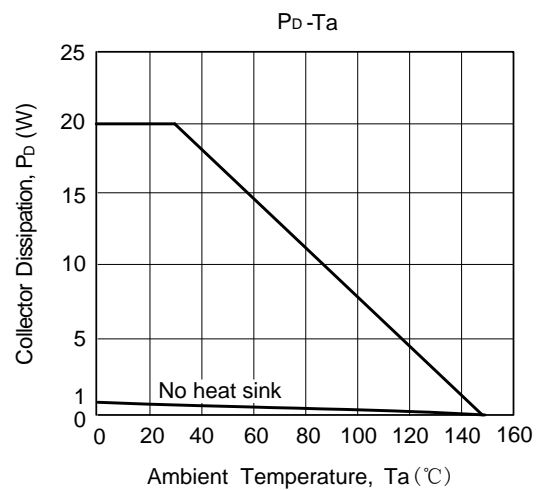
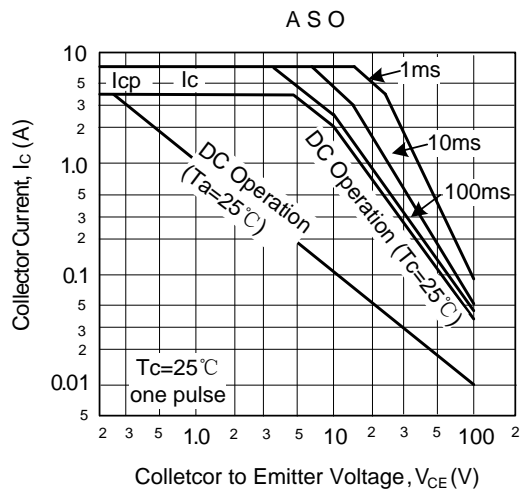
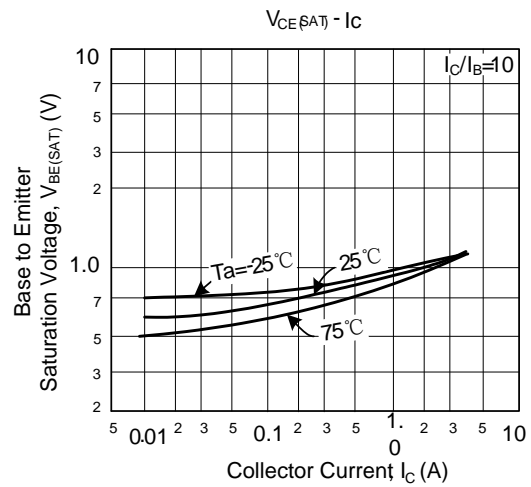
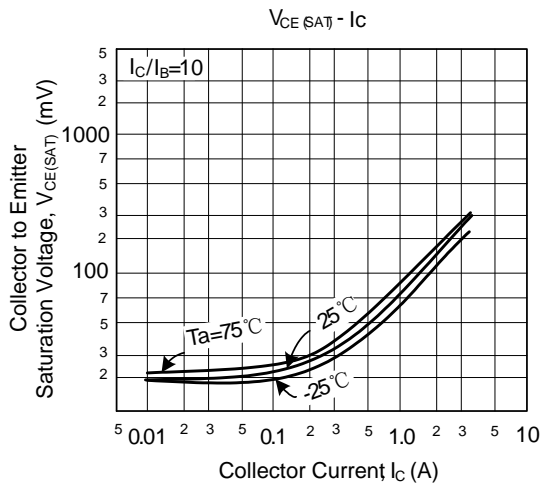
■ TEST CIRCUIT



TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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