Elektronische Bauelemente

2SD1816

4A , 120V

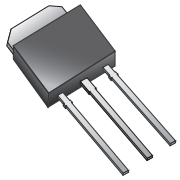
NPN Epitaxial Planar Silicon Transistor

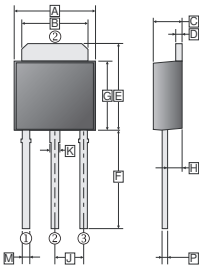
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

FEATURES

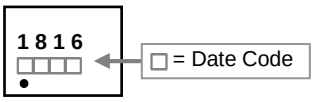
- Low Collector-to-Emitter Saturation Voltage
- Excllent Linearity of hFE
- High fT
- Fast Switching Time

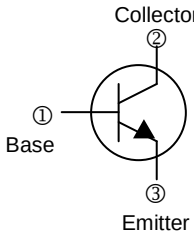
TO-251





MARKING CODE





REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.80	G	5.40	6.25
B	4.90	5.50	H	0.85	1.50
C	2.15	2.40	J	2.30	
D	0.43	0.90	K	0.60	1.05
E	6.50	7.50	M	0.50	0.90
F	7.20	9.65	P	0.43	0.62

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

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	V_{CBO}	120	V
Collector to Emitter Voltage	V_{CEO}	100	V
Emitter to Base Voltage	V_{EBO}	6	V
Collector Current (DC)	I_C	4	A
Collector Current (Pulse)[1]	I_C	8	A
Collector Power Dissipation	P_C	1	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-40 ~ 150	℃

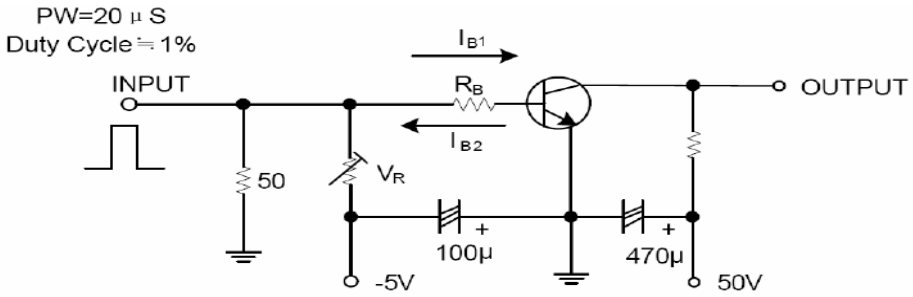
NOTE:
1. Duty=1/2, Pw=20ms
2. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

ELECTRICAL CHARACTERISTICS (T_A = 25℃ unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	120	-	-	V	I_C=10μA, I_E=0
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	100	-	-	V	I_C=1mA, I_B=0, R_B=∞
Emitter-base breakdown voltage	$V_{(BR)EBO}$	6	-	-	V	I_E=10μA, I_C=0
Collector cut-off current	I_{CBO}	-	-	1	μA	V_{CB}=100V, I_E=0
Emitter cut-off current	I_{EBO}	-	-	1	μA	V_{EB}=4V, I_C=0
DC current gain[1]	h_{FE}	140	-	280		V_{CE}=5V, I_C=500mA
		40	-	-		V_{CE}=5V, I_C=3A
Collector-emitter saturation voltage[1]	$V_{CE(sat)}$	-	0.15	0.4	V	I_C=2A, I_B=200mA
Base -emitter saturation voltage[1]	$V_{BE(sat)}$	-	0.9	1.2	V	I_C=2A, I_B=200mA
Transition frequency	f_T	-	180	-	MHz	V_{CE}=10V, I_C=500mA
Collector Output Capacitance	C_{OB}	-	40	-	pF	V_{CB}=10V, I_E=0, f=1MHz
Turn-on time	t_{on}	-	100	-	nS	See test circuit
Storage time	t_S	-	900	-		
Fall time	t_f	-	50	-		

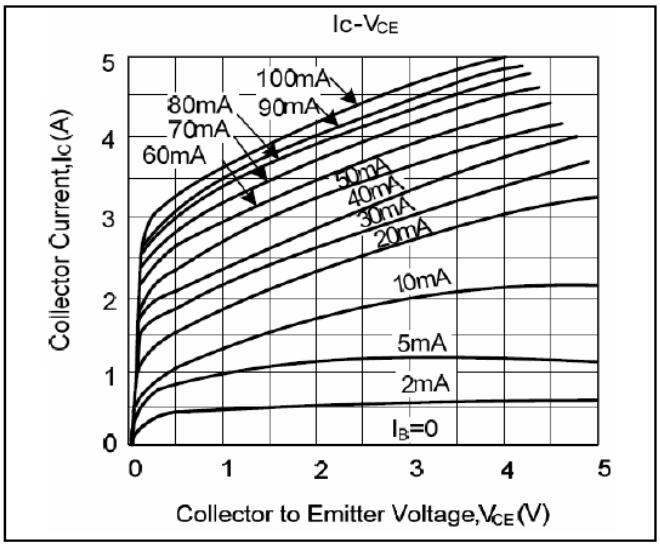
NOTE:
1. Measured under pulse condition. Pulse width≦300μs, Duty Cycle≦2%

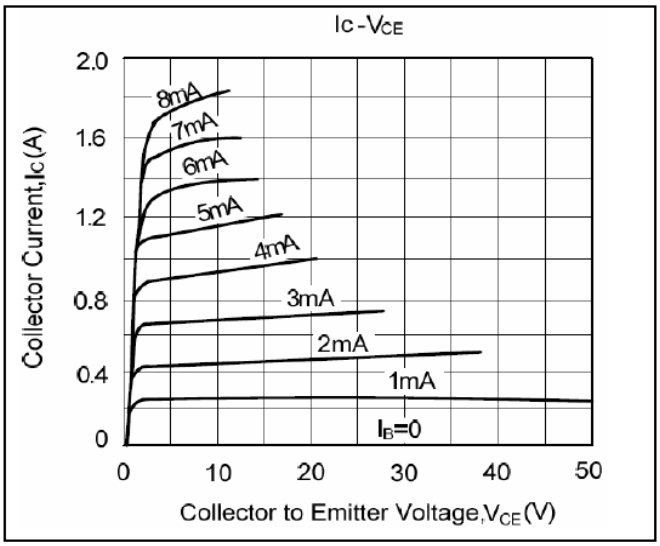
Switching Time Test Circuit

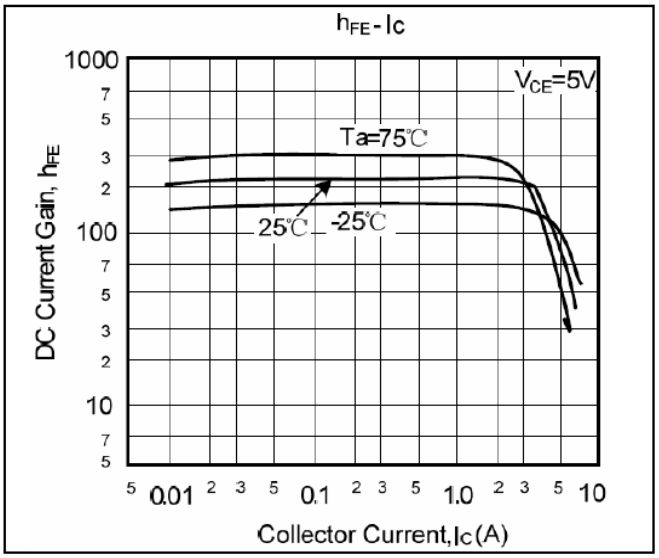


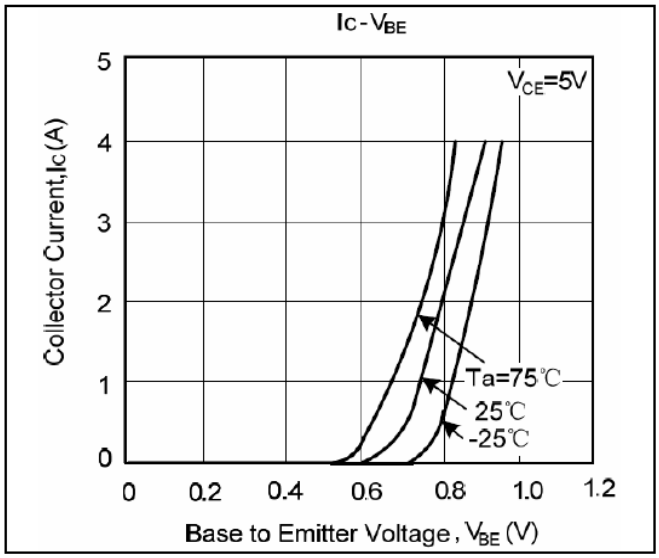
Ic=10, I_{B1}= -10, I_{B2}=2A
Unit (resistance: Ω , capacitance: F)

CHARACTERISTIC CURVES









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