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TO-92 Plastic-Encapsulate Transistors

2SD1616A TRANSISTOR（ NPN ）

TO—92

1.EMITTER
2. COLLECTOR
3. BSAE

1 2 3

FEATURE

Power dissipation

P_{CM}： 0.75 W（Tamb=25℃）

Collector current

I_{CM}： 1 A

Collector-base voltage

$V_{(BR)CBO}$： 120 V

Operating and storage junction temperature range

T_J ,T_{stg}： -55℃ to +150℃

ELECTRICAL CHARACTERISTICS（Tamb=25℃ unless otherwise specified）

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V(BR)_{CBO}$	I_C= 10μA ，I_E=0	120		V
Collector-emitter breakdown voltage	$V(BR)_{CEO}$	I_C= 2 mA ，I_B=0	60		V
Emitter-base breakdown voltage	$V(BR)_{EBO}$	I_E= 10μA，I_C=0	6		V
Collector cut-off current	I_{CBO}	V_{CB}=60V，I_E=0		0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=6V， I_C=0		0.1	μA
DC current gain	h_{FE1}	V_{CE}=2 V, I_C= 100mA	135	600	
	h_{FE2}	V_{CE}=2 V, I_C= 1A	81		
Collector-emitter saturation voltage *	$V_{CE(sat)}$	I_C= 1A, I_B=50mA		0.3	V
Base-emitter saturation voltage *	$V_{BE(sat)}$	I_C= 1A, I_B=50mA		1.2	V
Base-emitter voltage *	V_{BE}	V_{CE}= 2V, I_C=50mA		0.7	V
Transition frequency	f_T	V_{CE}=2 V, I_C= 100mA	100		MHz
Output capacitance	C_{ob}	,I_E= 0，f=1MHz		25	pF
Turn on time	t_{on}	**Vcc=10V, I_C=100mA, I_{B1}=- I_{B2}=10mA** $V_{BE(OFF)}$=-2~ -3V		0.07 typ	ms
Storage time	t_S			0.95 typ	ms
Fall time	t_F			0.07 typ	ms

*pulse test： PW=350μS，d=2%。

CLASSIFICATION OF h_{FE1}

Rank	L	K	U
Range	135-270	200-400	300-600

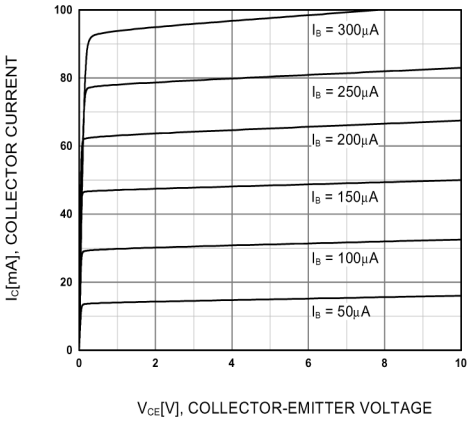


Figure 1. Static Characteristic

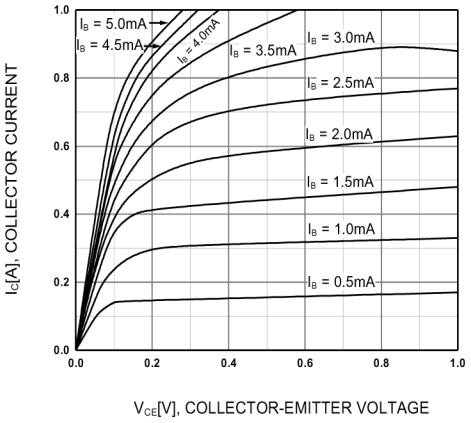


Figure 2. Static Characteristic

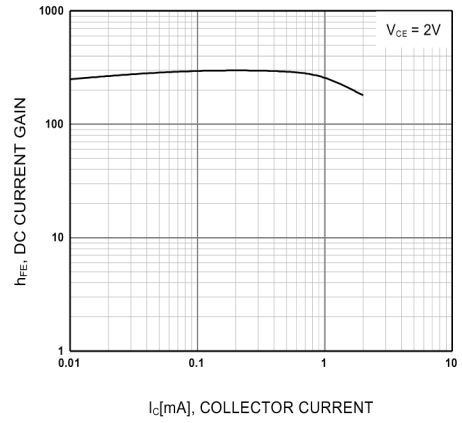


Figure 3. DC current Gain

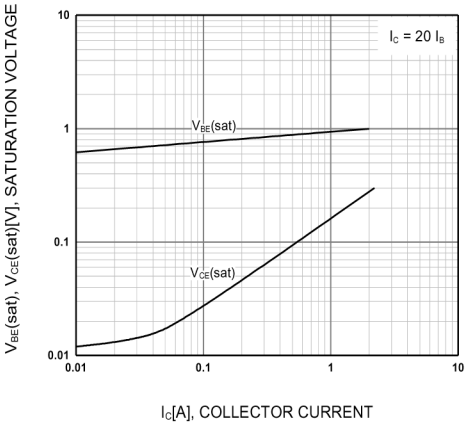


Figure 4. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

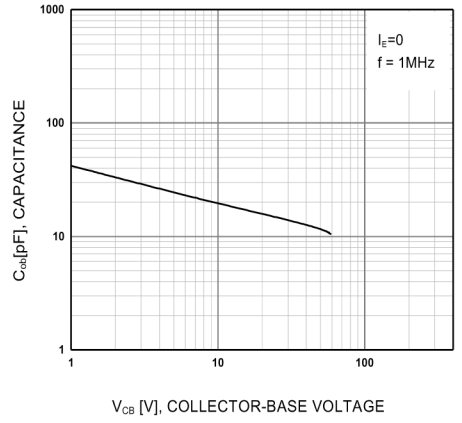


Figure 5. Collector Output Capacitance

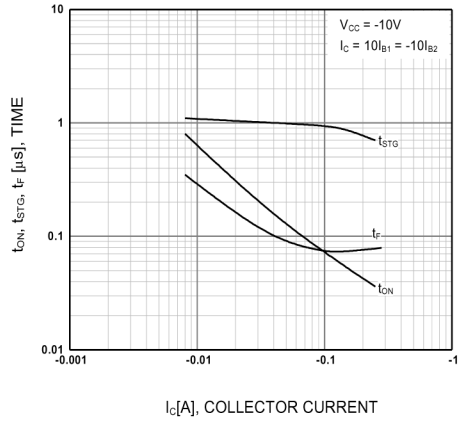


Figure 6. Switching Time

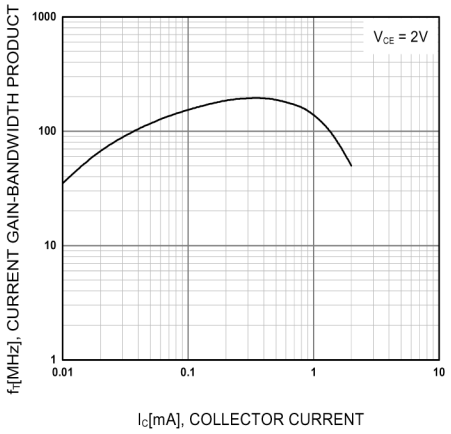


Figure 7. Current Gain Bandwidth Product

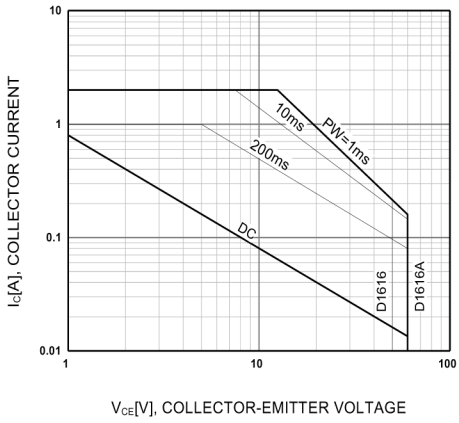


Figure 8. Safe Operating Area

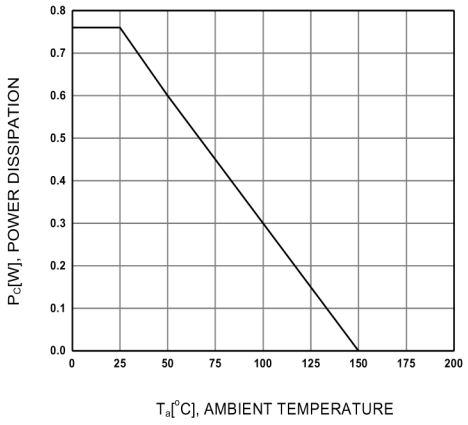
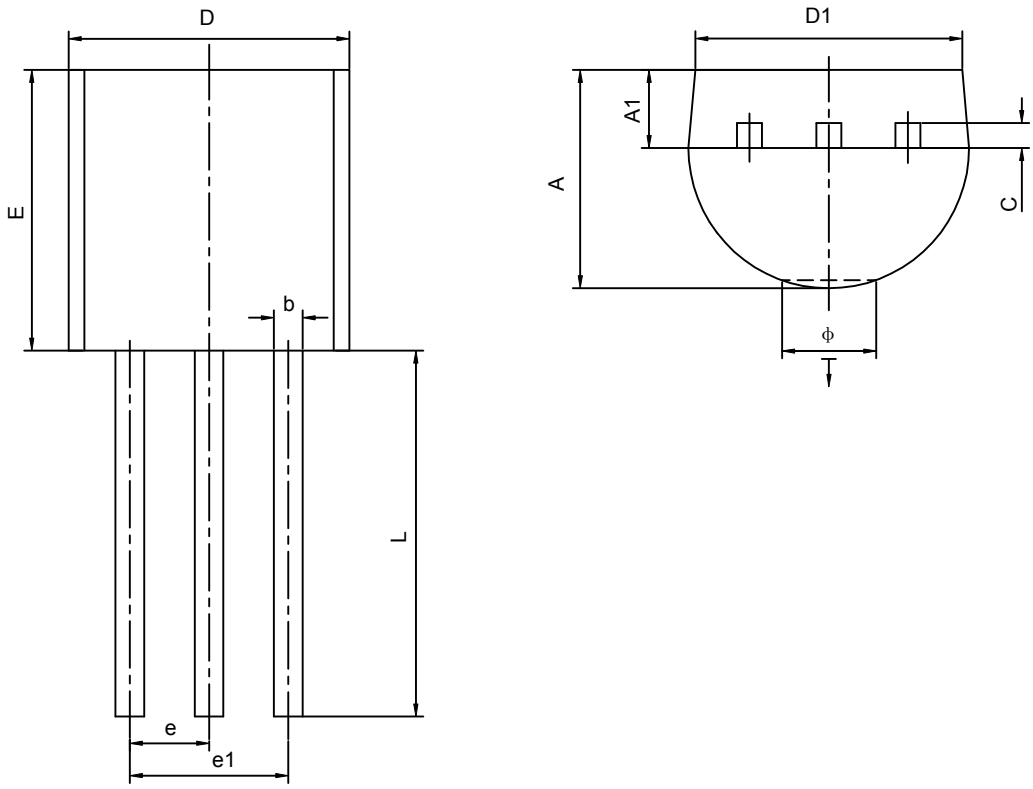


Figure 9. Power Derating

TO-92 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270TYP		0.050TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Ö		1.600		0.063
⊤	0.000	0.380	0.000	0.015