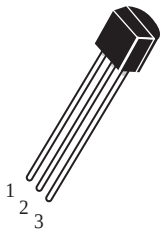
WEITRON

2SD1616
2SD1616A

NPN Transistors

Lead(Pb)-Free

TO-92



1. EMITTER
2. COLLECTOR
3. BASE

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Rating	Symbol	2SD16116	2SD1616A	Unit
Collector-Emitter Voltage	V_{CEO}	50	60	Vdc
Collector-Base Voltage	V_{CBO}	60	120	Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Collector Current	I_C	1.0		Adc
Total Device Dissipation T_A=25°C	P_D	0.75		W
Junction Temperature	T_j	150		°C
Storage, Temperature	Tstg	-55 to +150		°C

ELECTRICAL CHARACTERISTICS

Characteristics		Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage (I_C= 2.0 mAdc, I_B=0)	2SD1616 2SD1616A	$V_{(BR)CEO}$	50 60	-	Vdc
Collector-Base Breakdown Voltage (I_C= 10 uAdc, I_E=0)	2SD1616 2SD1616A	$V_{(BR)CBO}$	60 120	-	Vdc
Emitter-Base Breakdown Voltage (I_E= 10 uAdc, I_C=0)		$V_{(BR)EBO}$	6.0	-	Vdc
Collector Cutoff Current (V_{CB}=60 Vdc, I_E=0)		I_{CBO}	-	0.1	uAdc
Emitter Cutoff Current (V_{EB}= 6.0 Vdc, I_C=0)		I_{EBO}	-	0.1	uAdc

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted) (Countinued)

Characteristics	Symbol	Min	TYP	Max	Unit

ON CHARACTERISTICS

DC Current Gain (I_C=100 mAdc, V_{CE}=2.0 Vdc)	h_{FE}(1)	135	-	600	-
DC Current Gain (I_C=1.0 mAdc, V_{CE}= 2.0 Vdc)	h_{FE}(2)	81	-	-	-
Collector-Emitter Saturation Voltage(1) (I_C= 1.0 mAdc, I_B= 50 mAdc)	$V_{CE(sat)}$	-	0.15	0.3	Vdc
Base-Emitter Saturation Voltage (1) (I_C= 1.0 mAdc, I_B= 50 mAdc)	$V_{BE(sat)}$	-	0.9	1.2	Vdc
Base-Emitter on Voltage (1) (I_C =50mA, V_{CE}=2.0V)	V_{BE}(on)	-	0.64	0.7	Vdc
Current-Gain-Bandwidth Product (I_C= 100 mAdc, V_{CE}=2.0 Vdc, f=30MHz)	f_T	100	160	-	MHz
Output Capacitance (V_{CB}=10V, I_E=0V, f= 1MHZ)	Cob	-	-	25	PF

SWITCHING CHARACTERISTICS

Turn-On Time	Vcc =10V, Ic =100 mA I_{B1}=-I_{B2}=10 mA $V_{BE(OFF)}$=2-3V	ton	-	0.07	-	us
Storage Time		ts	-	0.95	-	
Fall Time		t_f	-	0.07	-	

Note:
1. Pulse Test: Pulse Width 350 us, Duty Cycle 2%.

Classification of $h_{FE(1)}$

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

Typcial Characteristics

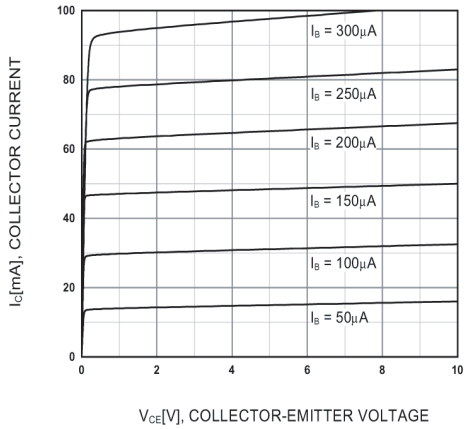


Figure 1. Static Characteristic

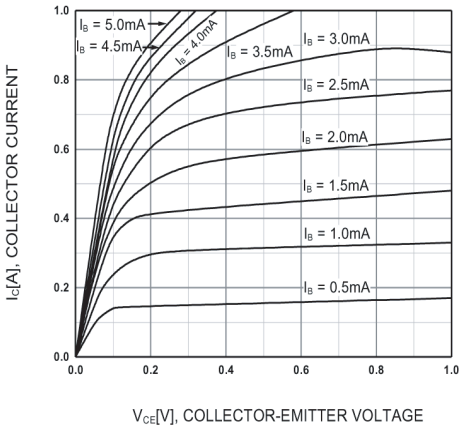


Figure 2. Static Characteristic

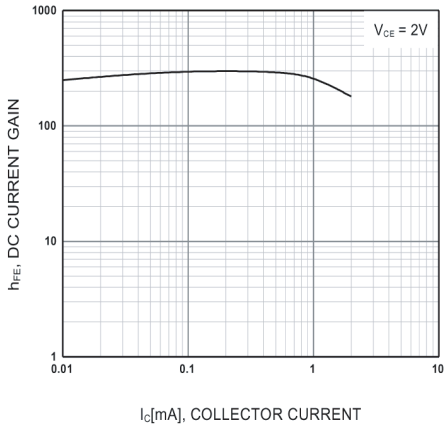


Figure 3. DC current Gain

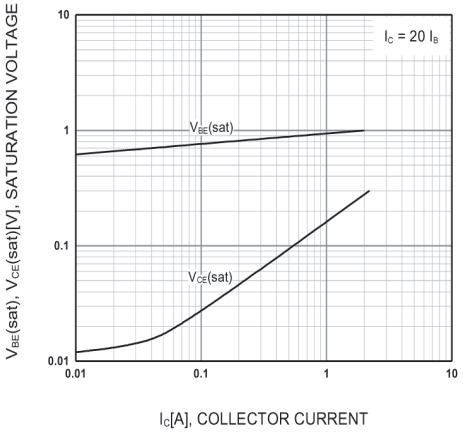


Figure 4. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

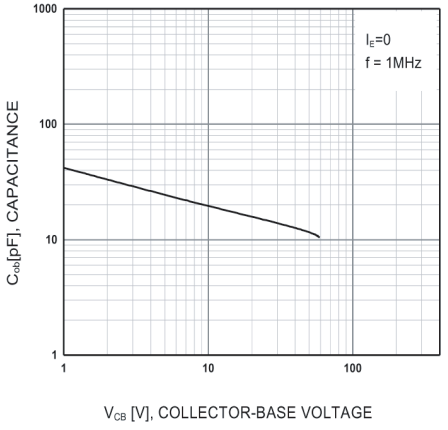


Figure 5. Collector Output Capacitance

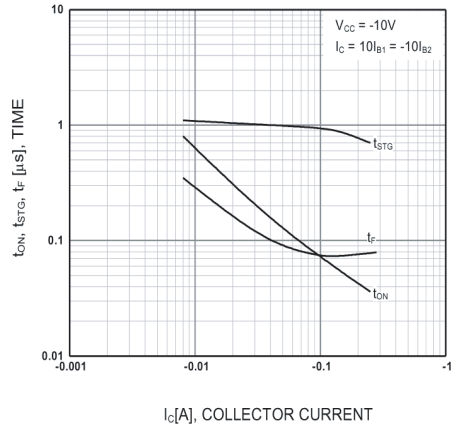


Figure 6. Switching Time

Typcial Characteristics

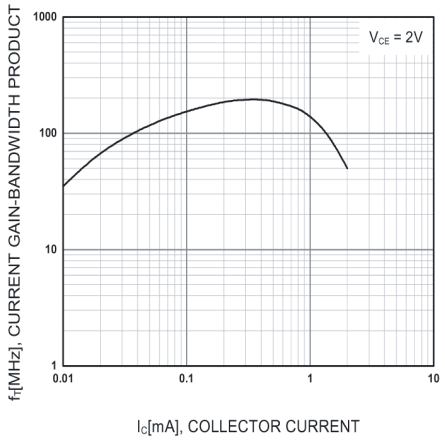


Figure 7. Current Gain Bandwidth Product

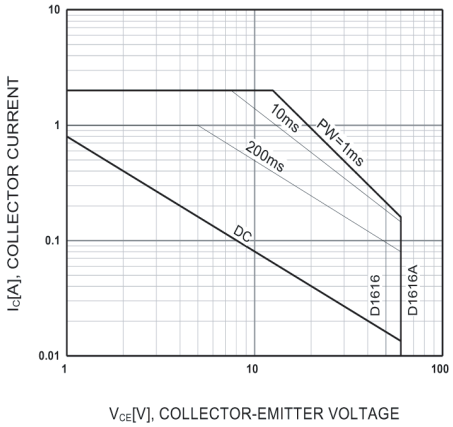


Figure 8. Safe Operating Area

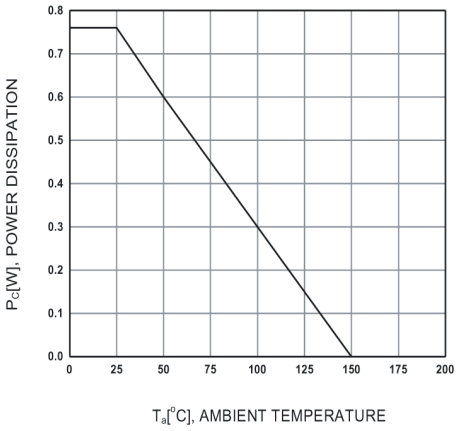
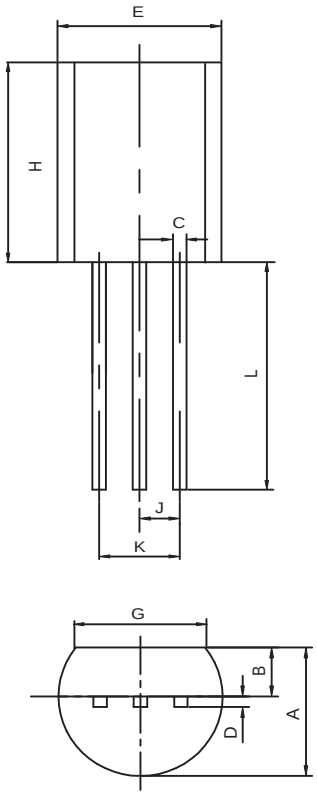


Figure 9. Power Derating

TO-92 Outline Dimensions

unit:mm



TO-92		
Dim	**Min**	**Max**
A	3.30	3.70
B	1.10	1.40
C	0.38	0.55
D	0.36	0.51
E	4.40	4.70
G	3.43	-
H	4.30	4.70
J	1.270TYP	
K	2.44	2.64
L	14.10	14.50