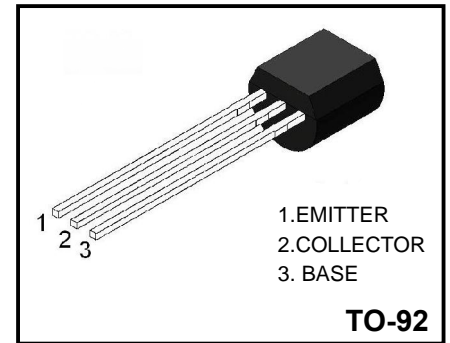


Plastic-Encapsulate Transistors

TRANSISTOR (NPN)

FEATURE

◆Power dissipation



MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	120	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_c	1	A
Collector Power Dissipation	P_c	0.75	W
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	167	°C/W
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55~+150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

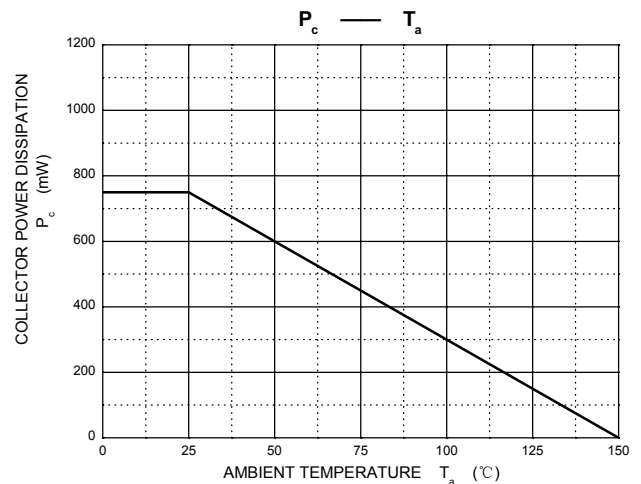
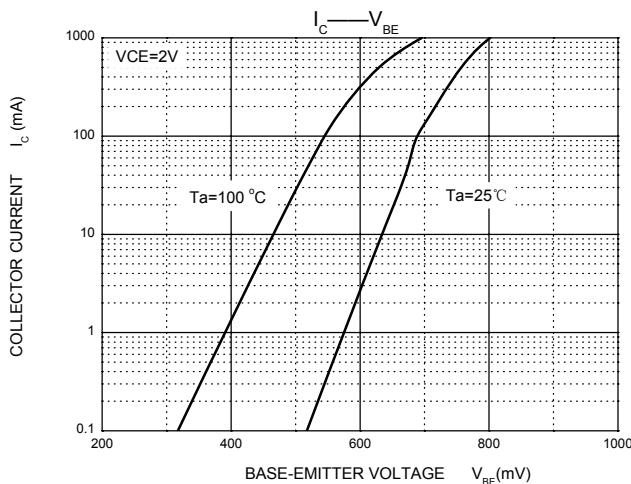
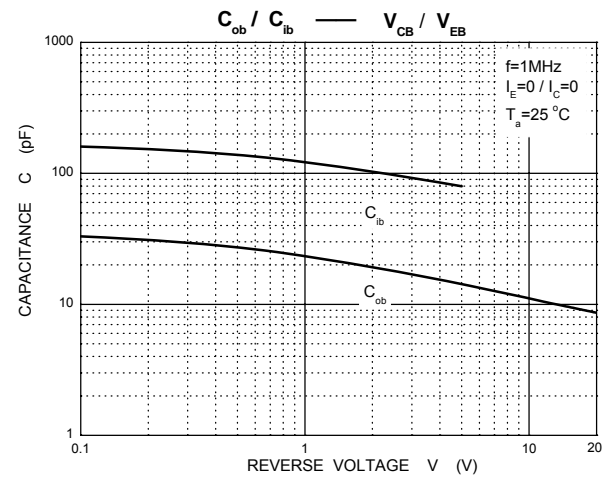
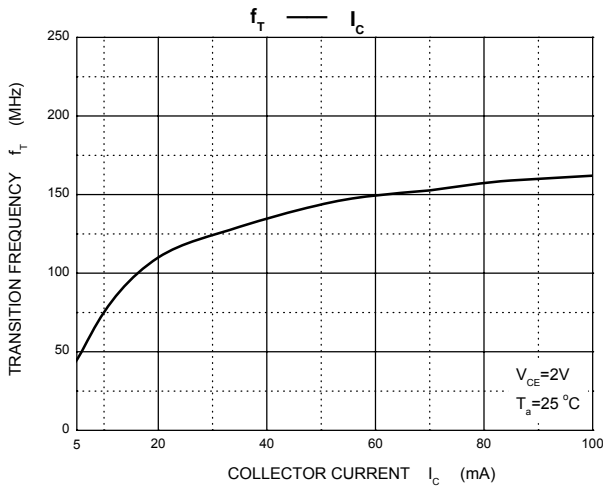
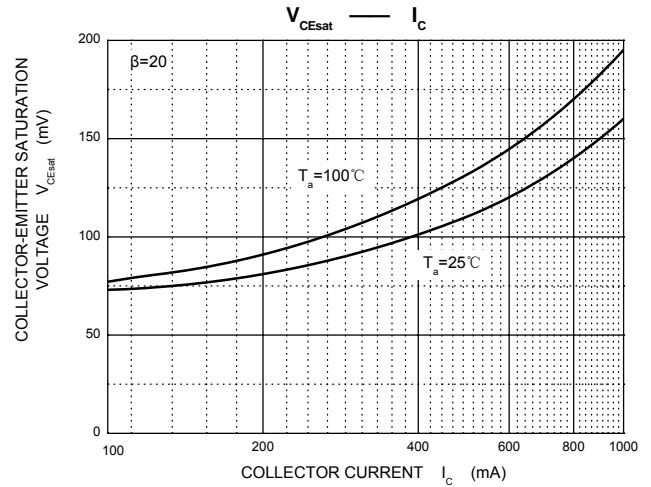
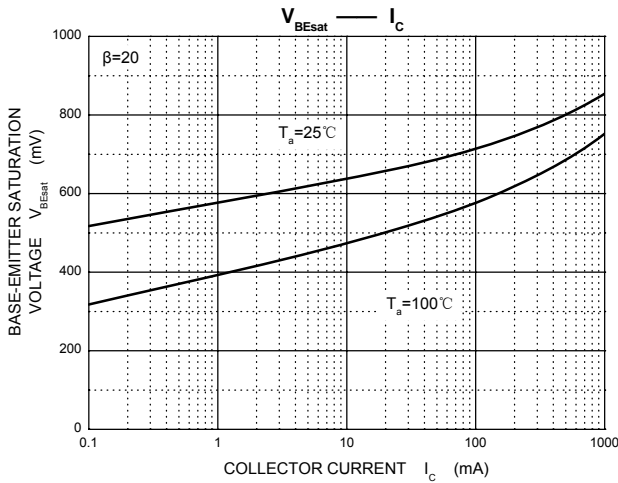
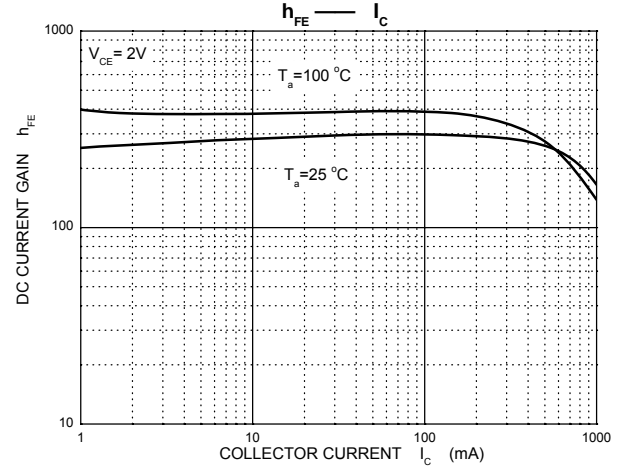
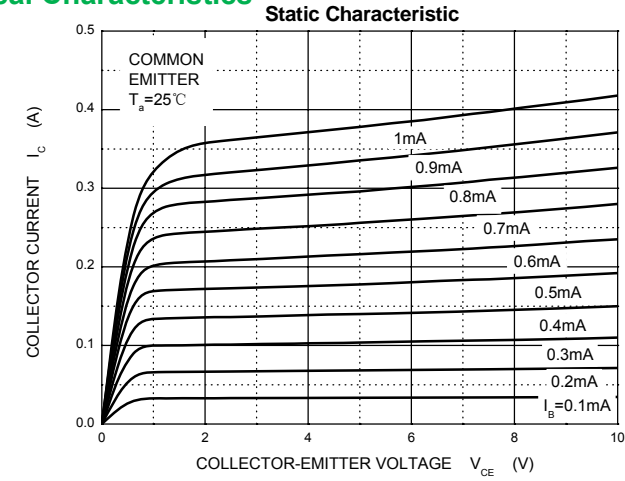
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_c = 10\mu A, I_E = 0$	120			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_c = 2mA, I_B = 0$	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_c = 0$	6			V
Collector cut-off 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}	$V_{CE} = 2V, I_c = 100mA$	135		600	
	h_{FE2}	$V_{CE} = 2V, I_c = 1A$	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}	$V_{CE} = 2V, I_c = 50mA$	0.6		0.7	V
Transition frequency	f_T	$V_{CE} = 2V, I_c = 100mA$	100			MHz
Output capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1MHz$			19	pF
Turn on time	t_{on}	$V_{CC} = 10V, I_c = 100mA, I_{B1} = -I_{B2} = 10mA$		0.07		μs
Storage time	t_s			0.95		μs
Fall time	t_f			0.07		μs

*pulse test: $PW \leq 350\mu s, \delta \leq 2\%$.

CLASSIFICATION OF h_{FE1}

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

Typical Characteristics



Package Dimensions

TO-92

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	3.30	3.70	0.130	0.146
A1	2.30	2.70	0.091	0.106
b	0.40	0.50	0.016	0.020
b1	0.50	0.70	0.020	0.028
c	0.35	0.45	0.014	0.018
D	4.45	4.70	0.175	0.185
E	4.40	4.65	0.173	0.183
e	1.17	1.37	0.046	0.054
e1	2.34	2.64	0.092	0.104
L	13.50	14.50	0.531	0.571
L1	1.80	2.20	0.071	0.087

Product Specification Classification

Part Number	Package	Marking	Pack Quantity
2SD1616A	TO-92	2SD1616A XXXXX	1000pcs/Bag