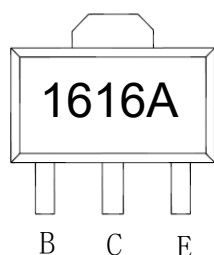
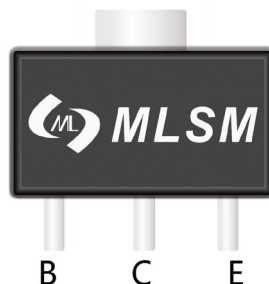


Features

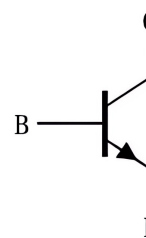
- Low collector saturation voltage
- High break down voltage
- High total power dissipation



Marking and pin assignment



SOT-89-3L top view



Schematic diagram



Pb-Free



Halogen-Free

Maximum Ratings (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	120	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	1	A
$P_C^{②}$	Collector Power Dissipation	0.5	mW
$R_{\theta JA}^{②}$	Thermal Resistance, junction to Ambient	250	°C/W
$R_{\theta JC}^{①}$	Thermal Resistance, junction to Case	10	°C/W
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	°C

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
2SD1616A	SOT-89-3L	1616A	1,000	10,000	40,000	7"reel

Electrical Characteristics (Ta=25°C unless otherwise specified)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C=10\mu A, I_E=0$	120	--	--	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=2mA, I_B=0$	60	--	--	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=10\mu A, I_C=0$	6	--	--	V
I_{CBO}	Collector cut-off current	$V_{CB}=60V, I_E=0$	--	--	0.1	μA
I_{EBO}	Emitter cut-off current	$V_{EB}=6V, I_C=0$	--	--	0.1	μA
$H_{FE(1)}$	DC current gain*	$V_{CE}=2V, I_C=100mA$	135	--	600	
$H_{FE(2)}$		$V_{CE}=2V, I_C=1A$	81	--	--	
$V_{CE(sat)}$	Collector-emitter saturation voltage*	$I_C=1A, I_B=50mA$	--	--	0.3	V
$V_{BE(sat)}$	Base-emitter saturation voltage*	$I_C=1A, I_B=50mA$	--	--	1.2	V
V_{BE}	Base-emitter voltage *	$V_{CE}=2V, I_C=50mA$	0.6	--	0.7	V
f_T	Transition frequency	$V_{CE}=2V, I_C=100mA$	100	--	--	MHz
t_{on}	Turn on time	$V_{CC}=10V, I_C=100mA,$ $I_{B1}=-I_{B2}=10mA$		0.07		μS
t_S	Storage time			0.95		μS
t_F	Fall time			0.07		μS
C_{ob}	Collector output capacitance	$V_{CB}=10V, I_E=0, f=1MHz$	--	--	19	pF

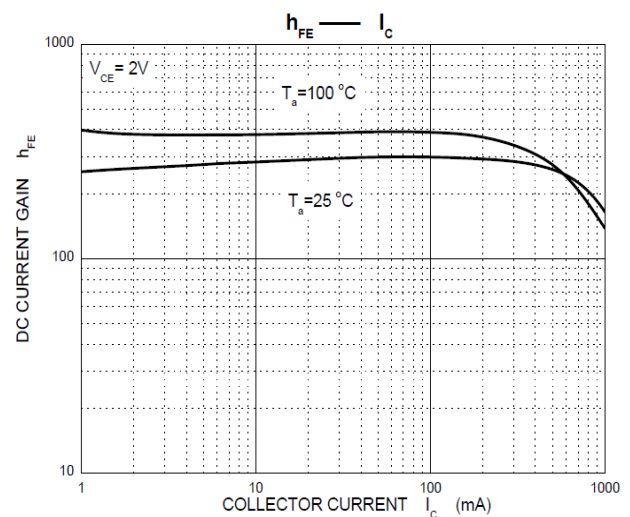
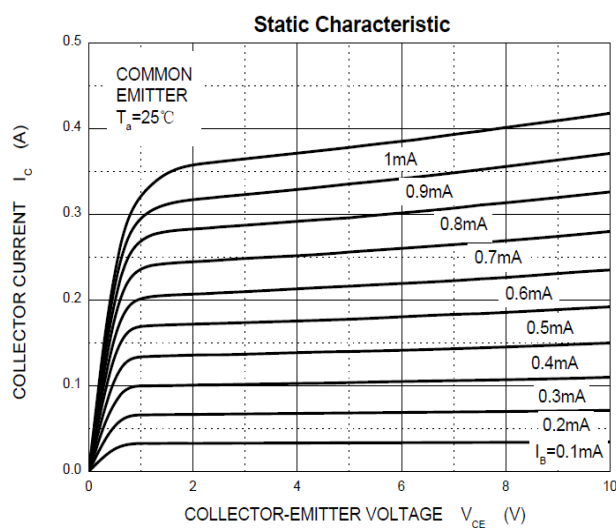
*pulse test: $PW \leq 350\mu s, \delta \leq 2\%$.

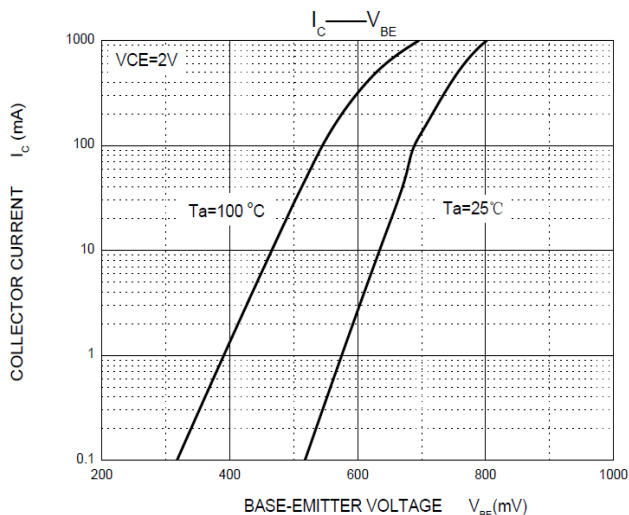
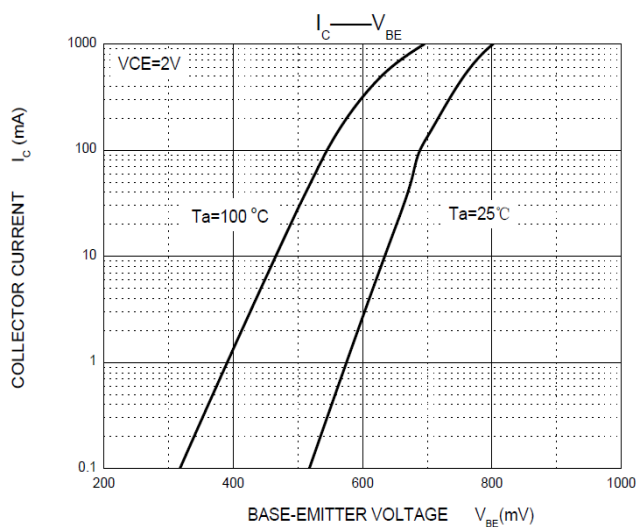
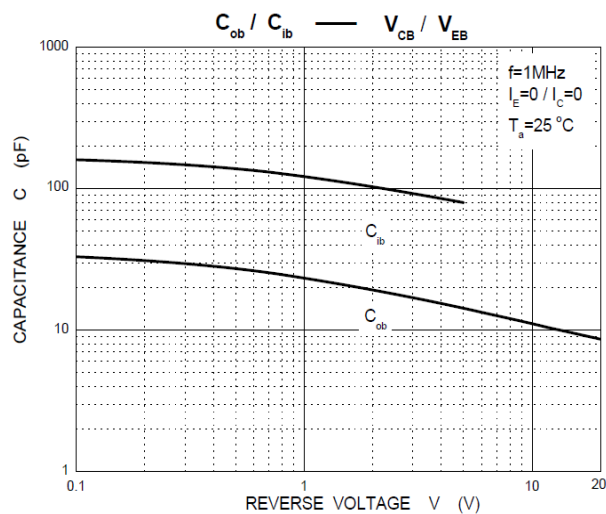
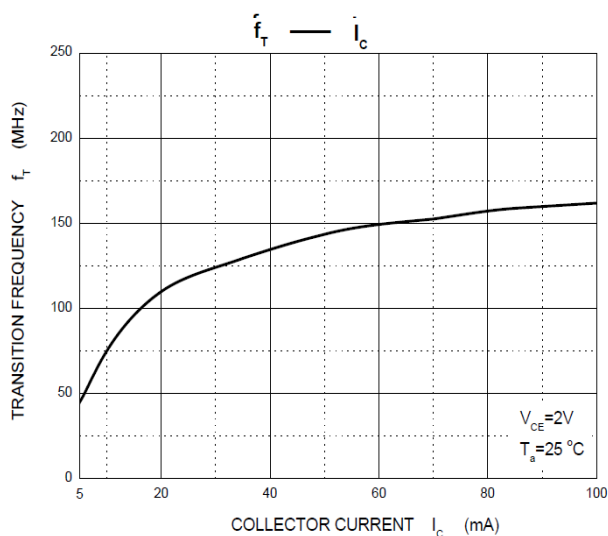
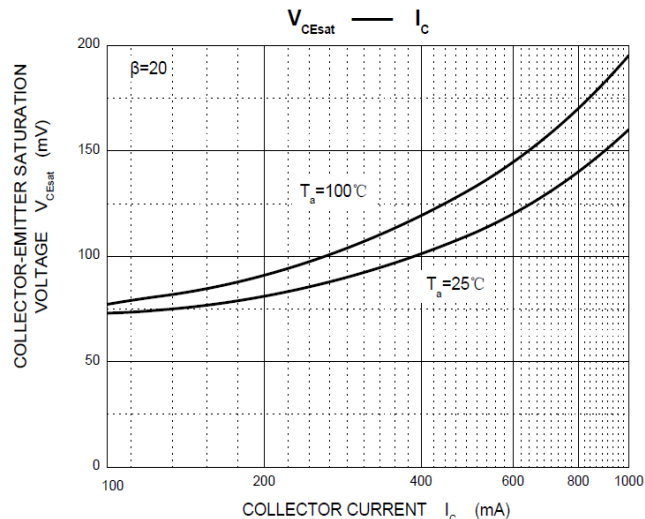
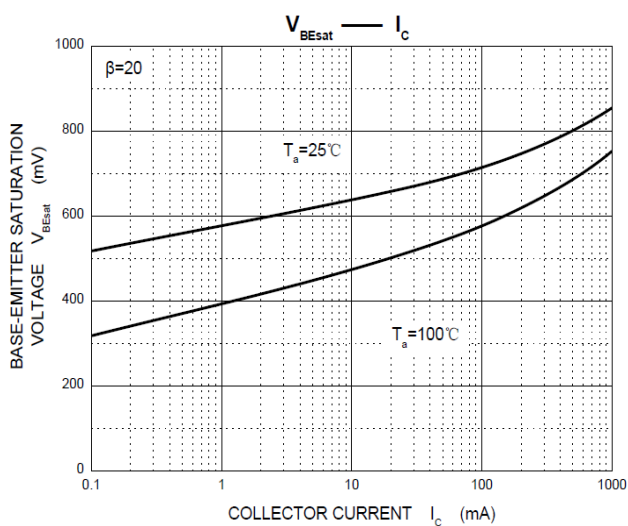
Notes: 1. $T_C=25^\circ C$.

2. The value of $R\theta JA$ is measured with the device mounted on 1 in2 FR-4 board in a still air environment with $T_A=25^\circ C$

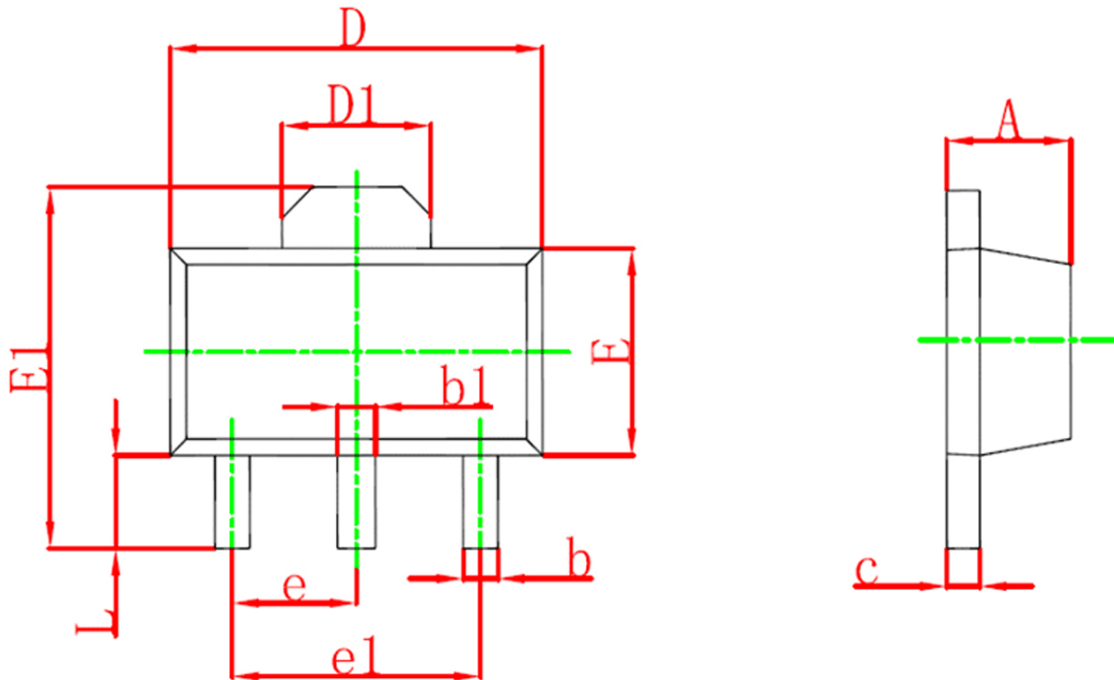
Classification of hFE

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

CLASSIFICATION of hFE1




SOT-89-3L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions in Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060 TYP	
e1	3.000 TYP		0.118 TYP	
L	0.900	1.200	0.035	0.047