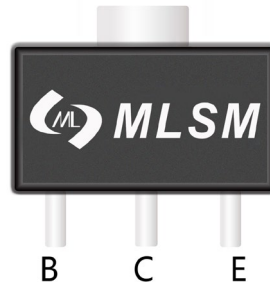
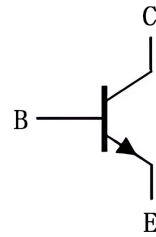


Features

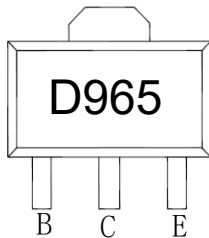
- Low Collector-Emitter Saturation Voltage
- Large Collector Power Dissipation and Current
- Mini Power Type Package



SOT-89-3L top view



Schematic diagram



Marking and pin assignment



Pb-Free



Halogen-Free

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	20	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current	5	A
P_C	Collector Power Dissipation	750	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	167	°C/W
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	°C

Ordering Information (Example)

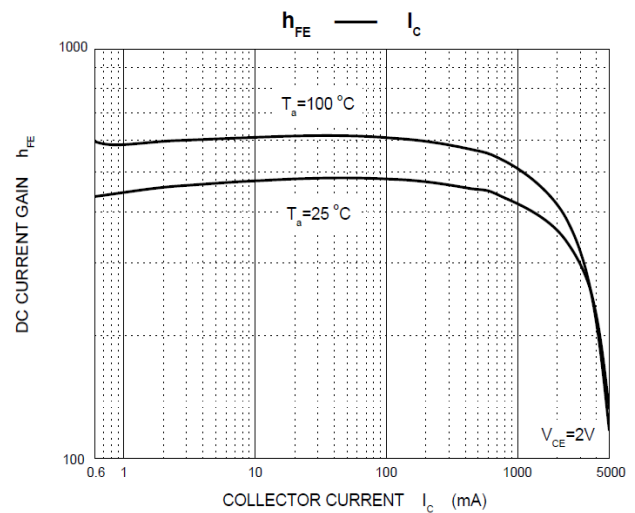
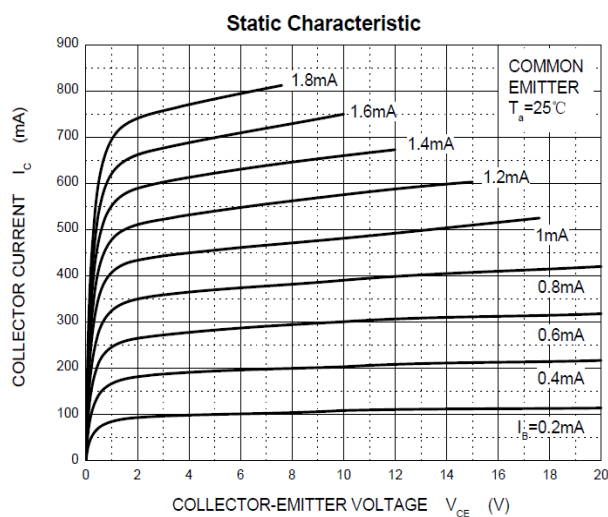
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
2SD965	SOT-89-3L	D965	1,000	10,000	40,000	7" reel

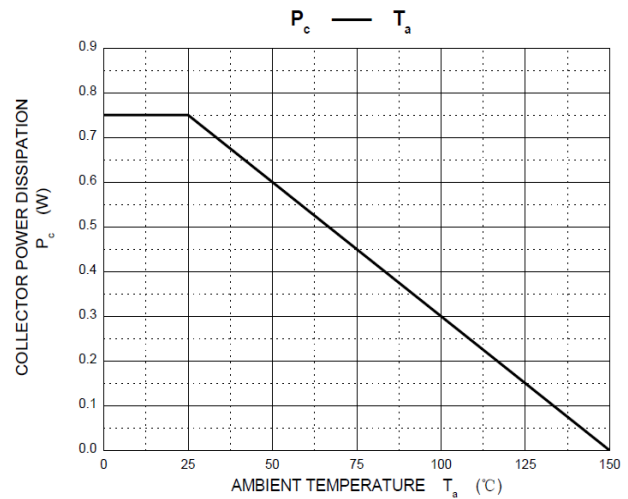
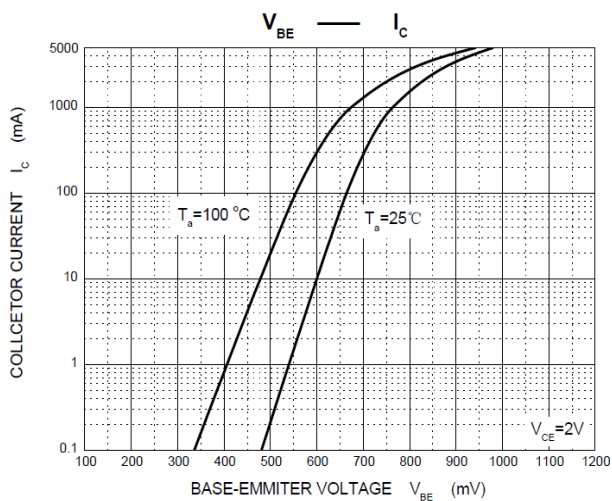
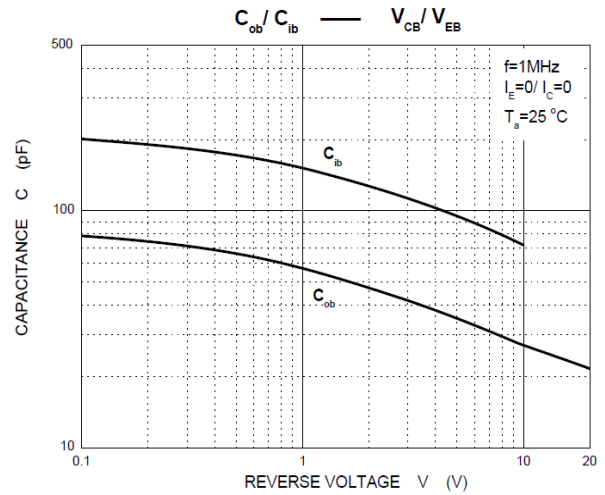
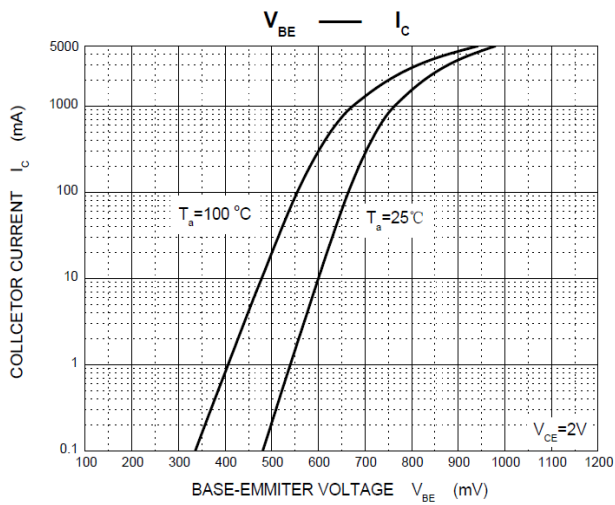
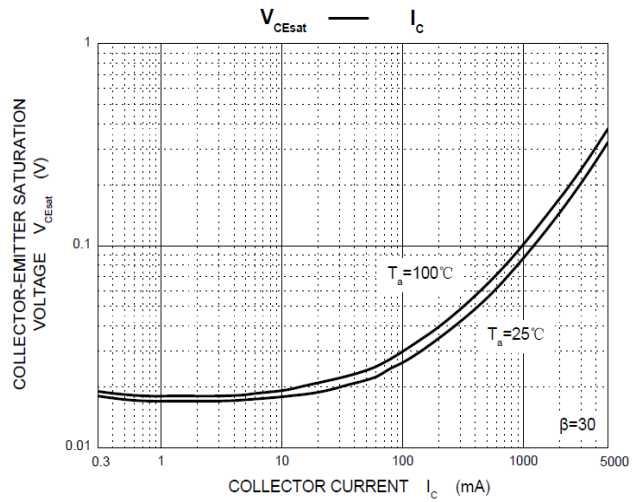
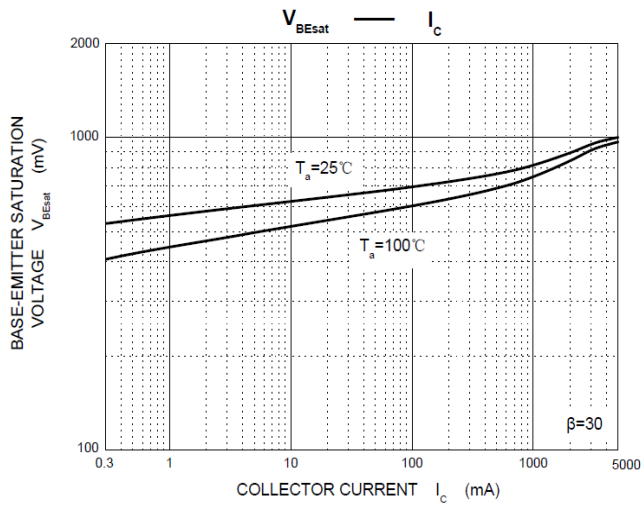
Electrical Characteristics (Ta=25°C unless otherwise specified)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C=100\mu A, I_E=0$	40	--	--	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=1mA, I_B=0$	20	--	--	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=10\mu A, I_C=0$	7	--	--	V
I_{CBO}	Collector cut-off current	$V_{CB}=10V, I_E=0$	--	--	0.1	μA
I_{EBO}	Emitter cut-off current	$V_{EB}=7V, I_C=0$	--	--	0.1	μA
$H_{FE(1)}$	DC current gain	$V_{CE}=2V, I_C=1mA$	--	200	--	
$H_{FE(2)}$	DC current gain	$V_{CE}=2V, I_C=500mA$	230	--	800	
$H_{FE(3)}$	DC current gain	$V_{CE}=2V, I_C=2A$	150	--	--	
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C=3A, I_B=0.1A$	--	--	1	V
C_{ob}	Collector output capacitance	$V_{CB}=20V, I_E=0, f=1MHz$	--	--	50	pF
f_T	Transition frequency	$V_{CE}=6V, I_C=50mA, f=200MHz$	--	150	--	MHz

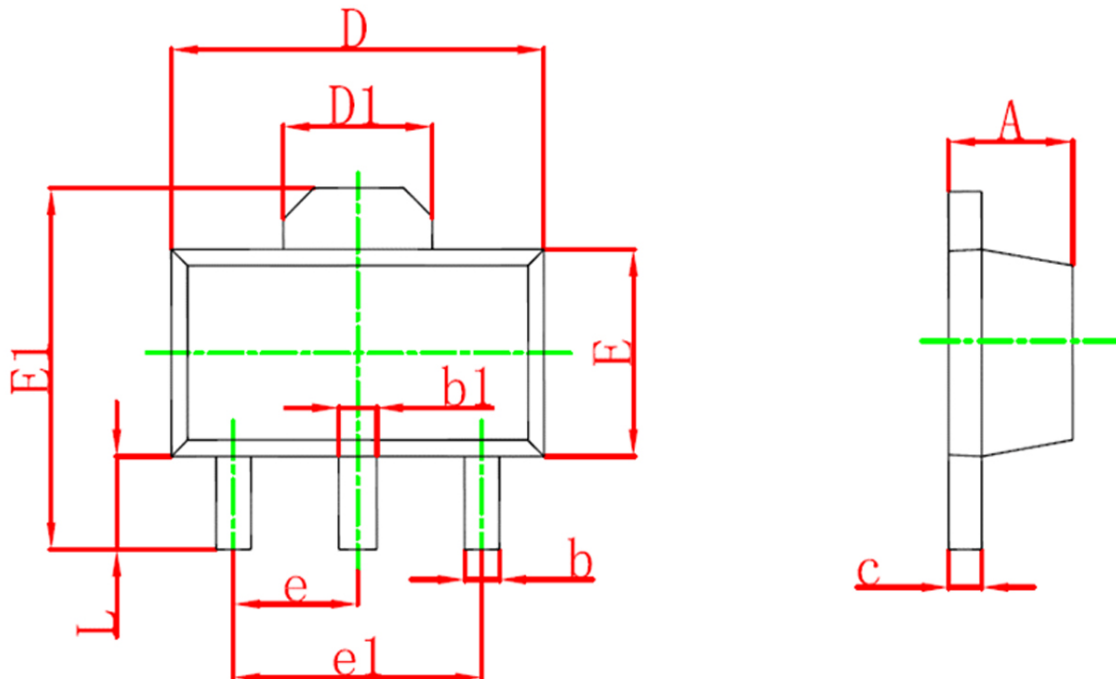
Classification of hFE

Rank	Q	R	S
Range	230-380	340-600	560-800

Typical Characteristics




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