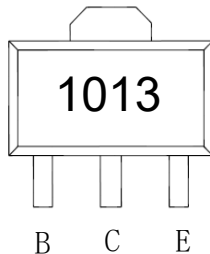


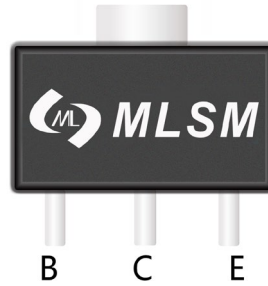
Features

- High voltage
 - Large continuous collector current
- capability MARKING: 1013

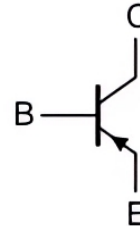


Marking and pin assignment

X:Rank



SOT-89-3L top view



Schematic diagram



Halogen-Free

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-160	V
V_{CEO}	Collector-Emitter Voltage	-160	V
V_{EBO}	Emitter-Base Voltage	-6	V
I_C	Collector Current	-1	A
P_C	Collector Power Dissipation	0.5	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	250	°C/W
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	°C

Ordering Information (Example)

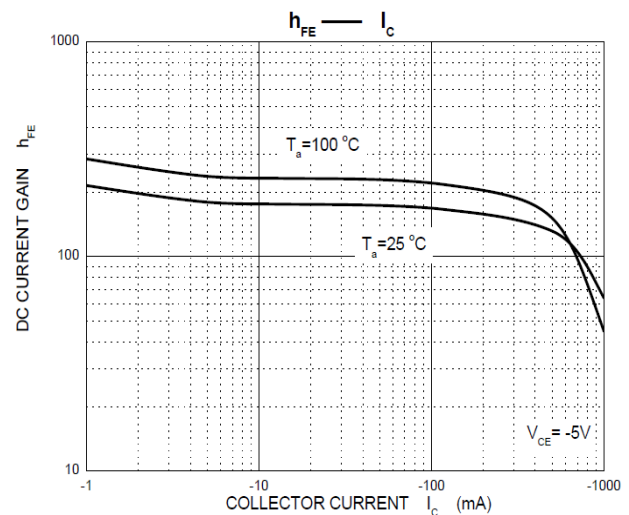
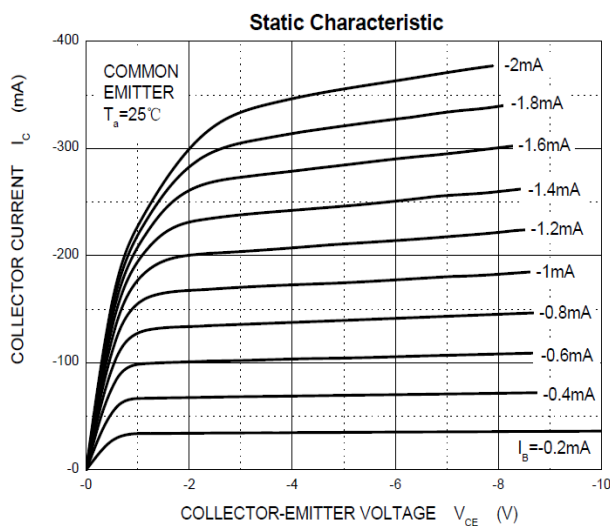
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
2SA1013	SOT-89-3L	1013	1,000	10,000	40,000	7"reel

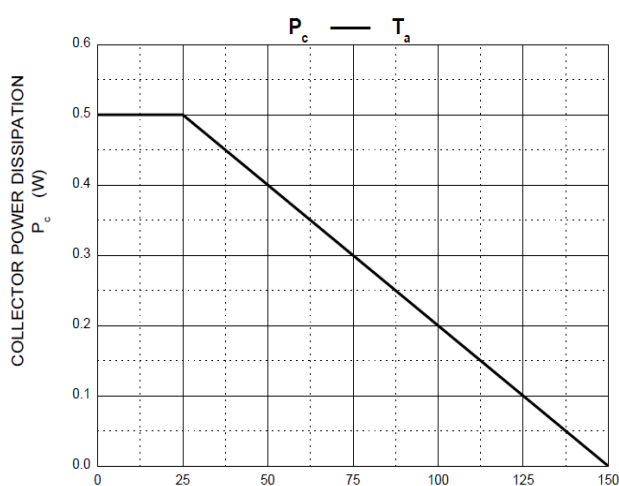
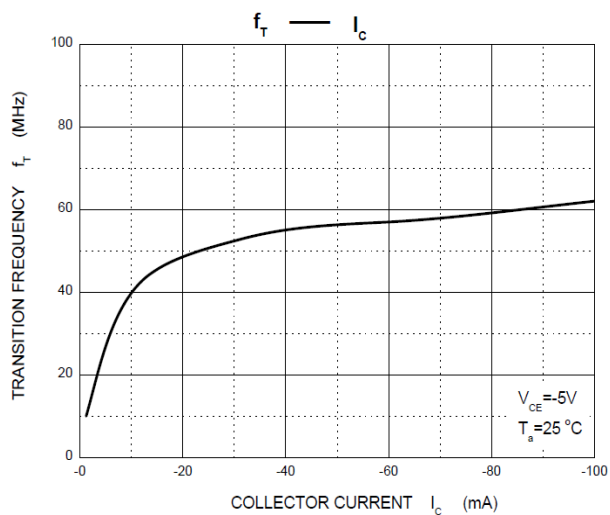
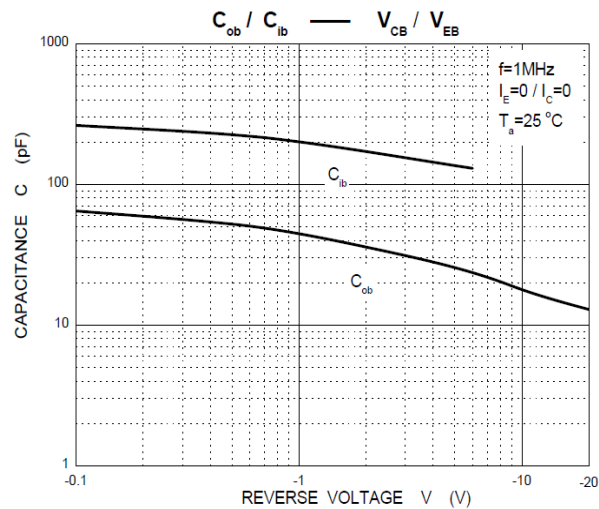
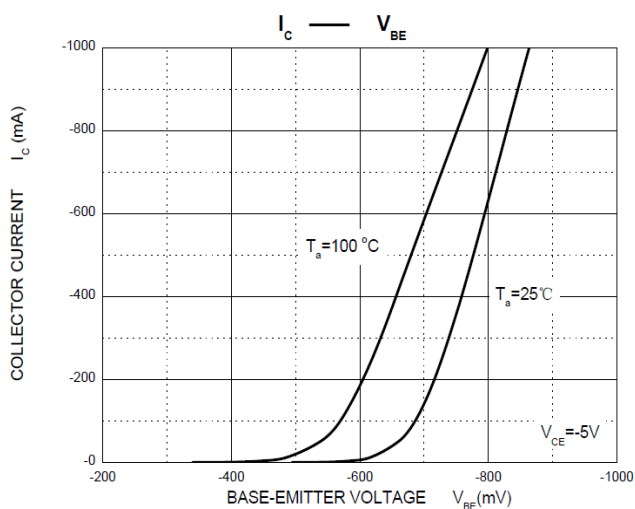
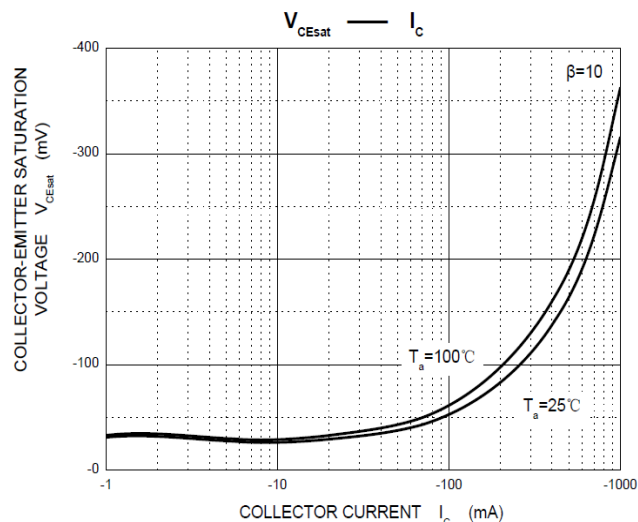
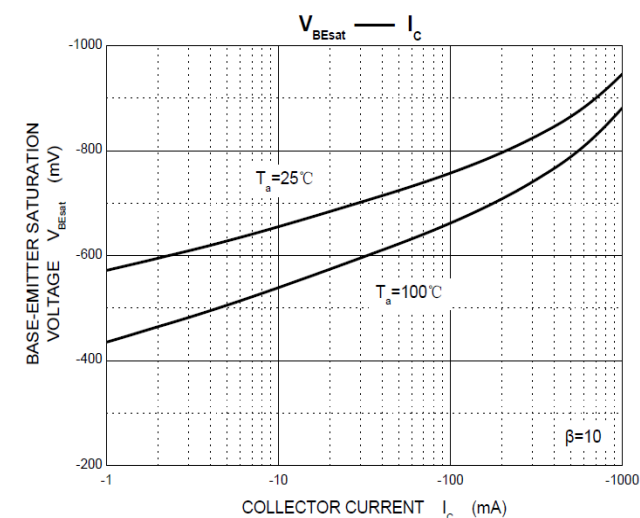
Electrical Characteristics (Ta=25°C unless otherwise specified)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C = -100\mu A, I_E = 0$	-160	--	--	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C = -1mA, I_B = 0$	-160	--	--	V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E = -10\mu A, I_C = 0$	-6	--	--	V
I_{CBO}	Collector cut-off current	$V_{CB} = -150V, I_E = 0$	--	--	-1	μA
I_{EBO}	Emitter cut-off current	$V_{EB} = -6V, I_C = 0$	--	--	-1	μA
h_{FE}	DC current gain	$V_{CE} = -5V, I_C = -200mA$	60	--	320	
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C = -500mA, I_B = -50mA$	--	--	-1.5	V
V_{BE}	Base-emitter voltage	$I_C = -5mA, V_{CE} = -5V$	--	--	-0.75	V
F_t	Transition frequency	$V_{CE} = -5V, I_C = -200mA$	15	--	--	MHz

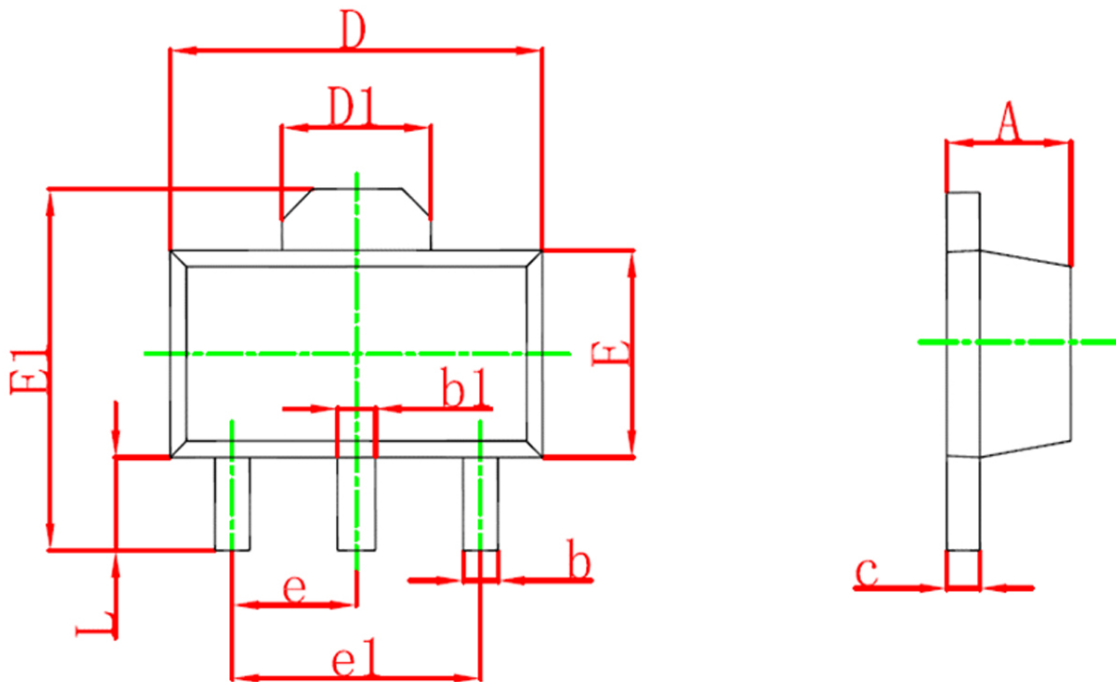
Classification of h_{FE}

Rank	R	O	Y
Range	60-120	100-200	160-320

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