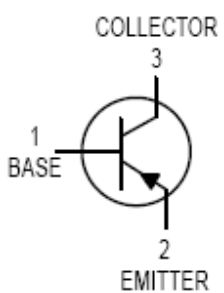
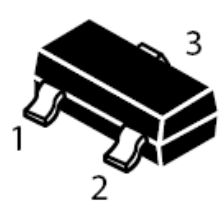


<b>PNP General Purpose Transistor</b>		
<p><b>FEATURES</b></p> <ul style="list-style-type: none"> <li>• Ideal for Medium Power Amplification and Switching</li> <li>• Complementary PNP Type available(MMBT2222A)</li> </ul> <p><b>MECHANICAL DATA</b></p> <ul style="list-style-type: none"> <li>• Case: SOT-23 Plastic</li> <li>• Case material: “Green” molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl)</li> <li>• Lead Free in RoHS 2002/95/EC Compliant</li> </ul>		

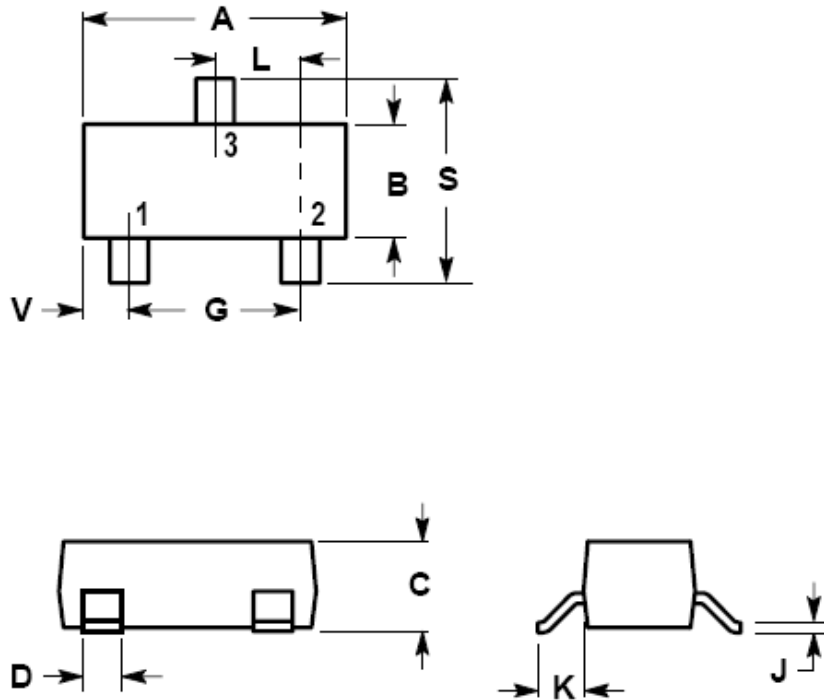
**Maximum Ratings @ T<sub>A</sub> = 25°C**

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-60	V
Collector-Emitter Voltage	$V_{CEO}$	-60	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current -Continuous	$I_C$	-600	mA
Collector Power Dissipation	$P_C$	250	mW
Thermal Resistance, junction to Ambient	$R_{\theta JA}$	500	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55~+150	°C

**Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified**

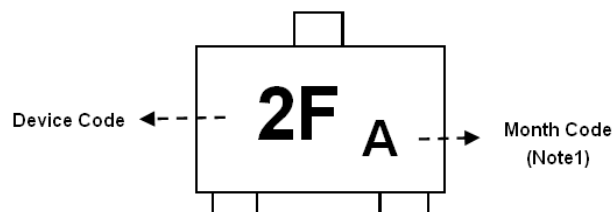
Characteristic	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	$I_C = -10\mu A, I_E = 0$	$V_{CBO}$	-60			V
Collector-emitter breakdown voltage	$I_C = -10mA, I_B = 0$	$V_{CEO}$	-60			V
Emitter-base breakdown voltage	$I_E = -10\mu A, I_C = 0$	$V_{EBO}$	-5			V
Collector-base cut-off current	$V_{CB} = -50V, I_E = 0$	$I_{CBO}$			-20	nA
Emitter-base cut-off current	$V_{EB} = -3V, I_C = 0$	$I_{EBO}$			-10	nA
Collector-emitter cut-off current	$V_{CE} = -30V, V_{BE(off)} = -0.5V$	$I_{CEX}$			-50	nA
DC current gain	$V_{CE} = -10V, I_C = -150mA$	$h_{FE1}$	100		300	
	$V_{CE} = -10V, I_C = -0.1mA$	$h_{FE2}$	75			
	$V_{CE} = -10V, I_C = -1mA$	$h_{FE3}$	100			
	$V_{CE} = -10V, I_C = -10mA$	$h_{FE4}$	100			
	$V_{CE} = -10V, I_C = -500mA$	$h_{FE5}$	50			
Collector-emitter saturation voltage	$I_C = -150mA, I_B = -15mA$	$V_{CE(sat)1}$			-0.4	V
	$I_C = -500mA, I_B = -50mA$	$V_{CE(sat)2}$			-1.6	V
Base-emitter saturation voltage	$I_C = -150mA, I_B = -15mA$	$V_{BE(sat)1}$			-1.3	V
	$I_C = -500mA, I_B = -50mA$	$V_{BE(sat)2}$			-2.6	V
Transition frequency	$V_{CE} = -20V, I_C = -50mA, f = 100MHz$	$f_T$	200			MHz
Delay time	$V_{CC} = -30V, I_C = -150mA, I_{B1} = -15mA$	$T_d$			10	nS
Rise time		$T_r$			25	nS
Storage time	$V_{CC} = -6V, I_C = -150mA$	$T_s$			225	nS
Fall time	$I_{B1} = -I_{B2} = -15mA$	$T_f$			60	nS

### SOT-23 Outline Dimension



Symbol	Dimension In Millimeters	
	Min	Max.
A	2.80	3.04
B	1.20	1.40
C	0.89	1.11
D	0.37	0.50
G	1.78	2.04
J	0.085	0.177
K	0.35	0.69
L	0.89	1.02
S	2.10	2.64
V	0.45	0.60

### Device Marking:

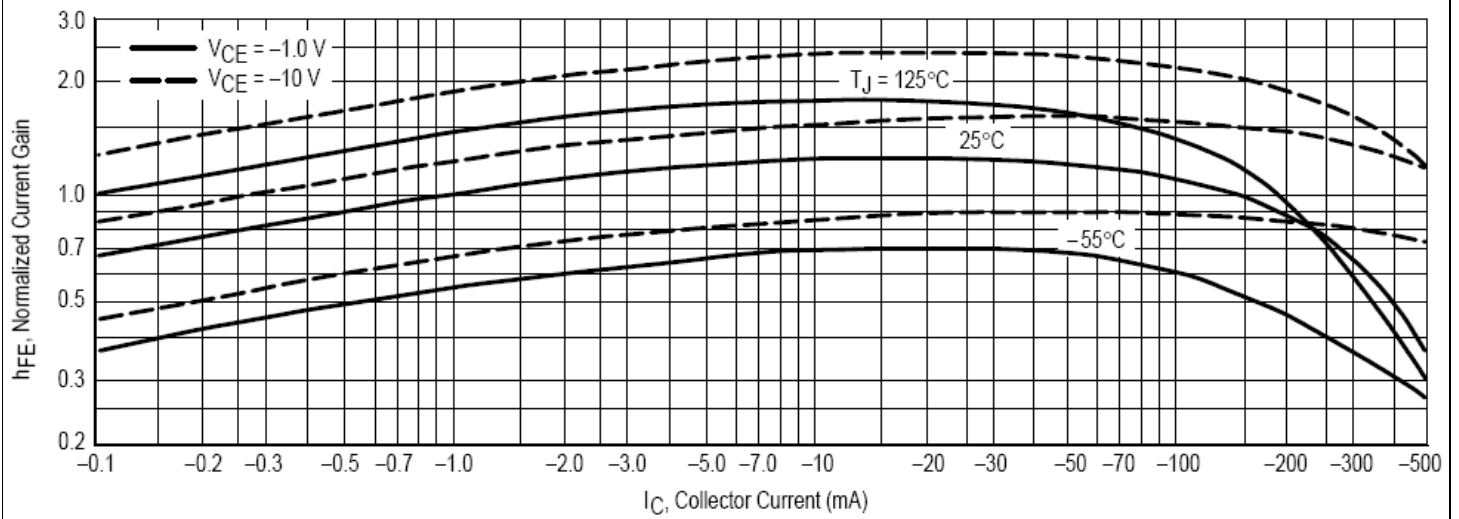


### Note1:

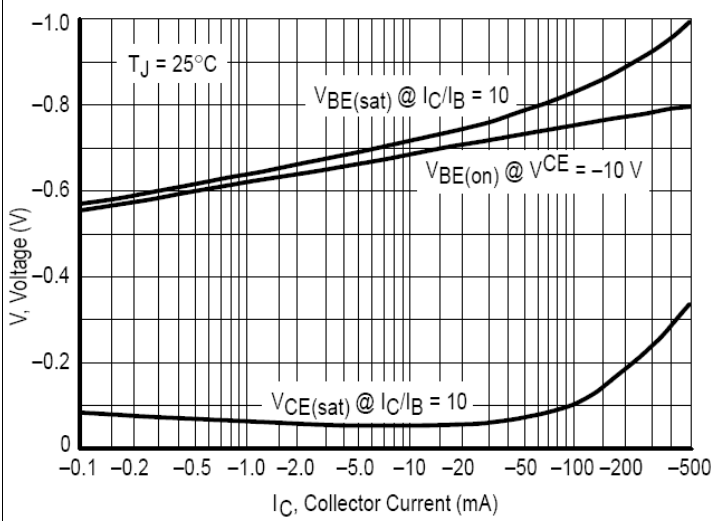
Odd Year	J	O	L	C	K	B	P	D	M	E	G	F
Even Year	W	N	Y	T	R	H	A	I	U	X	Z	S

# Electrical characteristic curves

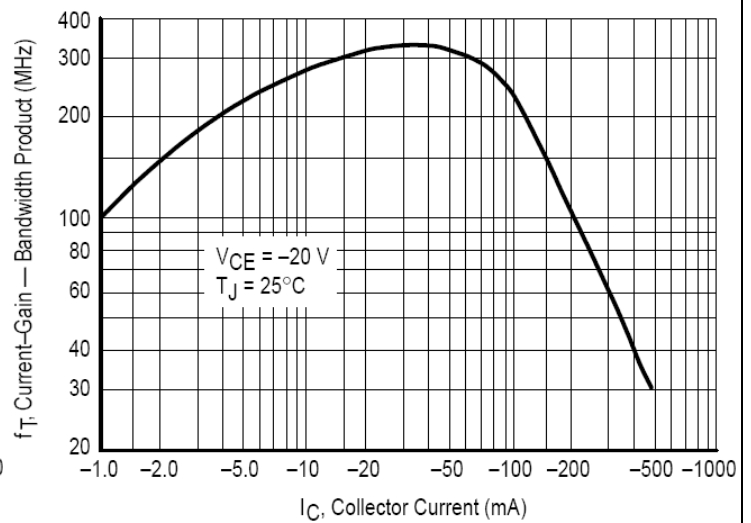
**Fig.1 DC Current Gain vs. Collector Current**



**Fig.2 "On" Voltages**



**Fig.3 Gain-Bandwidth Product vs. Collector Current**



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