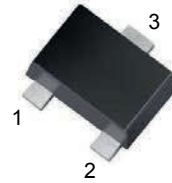
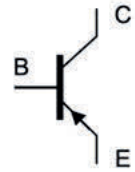


**Features**

- Epitaxial planar die construction
- Small outline surface mount package



SOT-723



Schematic Diagram

**Absolute Maximum Ratings** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector to Base Voltage	$V_{CBO}$	-60	V
Collector to Emitter Voltage	$V_{CEO}$	-60	V
Emitter to Base Voltage	$V_{EBO}$	-5.0	V
Collector Current-Continuous	$I_C$	-600	mA
Total Device Dissipation	$P_D$	265	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	470	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^{\circ}\text{C}$

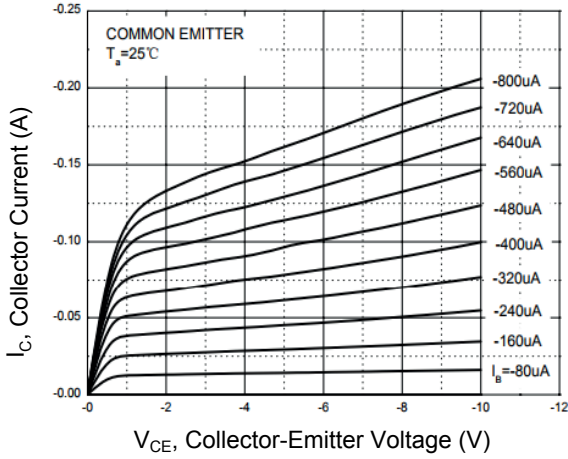
**Electrical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Max	Units
Collector-Emitter Breakdown Voltage <sup>1</sup>	$V_{(BR)CEO}$	$I_C=-10.0\text{mA}, I_B=0$	-60	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-60	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-5.0	-	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-50\text{V}, I_E=0$	-	-0.01	$\mu\text{A}$
Collector Cutoff Current	$I_{CEX}$	$V_{CE}=-30\text{V}, V_{EB(off)}=-0.5\text{V}$	-	-50	nA
Collector Cutoff Current	$I_{EBO}$	$V_{EB}=-5\text{V}, I_C=0$	-	-0.1	$\mu\text{A}$
Base Cutoff Current	$I_{BL}$	$V_{CE}=-30\text{V}, V_{EB(off)}=-0.5\text{V}$	-	-50	nA
DC Current Gain	$h_{FE}$	$I_C=-0.1\text{mA}, V_{CE}=-10\text{V}$	75	-	-
		$I_C=-1.0\text{mA}, V_{CE}=-10\text{V}$	100	-	
		$I_C=-10\text{mA}, V_{CE}=-10\text{V}$	100	-	
		$I_C=-150\text{mA}, V_{CE}=-10\text{V}$	100	300	
		$I_C=-500\text{mA}, V_{CE}=-10\text{V}^1$	50	-	
Collector-Emitter Saturation Voltage <sup>1</sup>	$V_{CE(sat)}$	$I_C=-150\text{mA}, I_B=-15\text{mA}$	-	-0.4	V
		$I_C=-500\text{mA}, I_B=-50\text{mA}$	-	-1.6	
Base-Emitter Saturation Voltage <sup>1</sup>	$V_{BE(sat)}$	$I_C=-150\text{mA}, I_B=-15\text{mA}$	-	-1.3	V
		$I_C=-500\text{mA}, I_B=-50\text{mA}$	-	-2.6	
Current Gain Bandwidth Product <sup>1,2</sup>	$f_T$	$I_C=-50\text{mA}, V_{CE}=-20\text{V}, f=100\text{MHz}$	200	-	MHz
Output Capacitance	$C_{obo}$	$V_{CB}=-10\text{V}, I_E=0, f=1.0\text{MHz}$	-	8	pF
Input Capacitance	$C_{ibo}$	$V_{EB}=-2.0\text{V}, I_C=0, f=1.0\text{MHz}$	-	30	pF
Turn On Time	$t_{on}$	$V_{CC}=-30\text{V}, I_C=-150\text{mA}, I_{B1}=-15\text{mA}$	-	45	ns
Delay Time	$t_d$		-	10	
Rise Time	$t_r$		-	40	
Turn Off Time	$t_{off}$	$V_{CC}=-6.0\text{V}, I_C=-150\text{mA}, I_{B1}=I_{B2}=-15\text{mA}$	-	100	
Storage Time	$t_s$		-	80	
Fall Time	$t_f$		-	30	

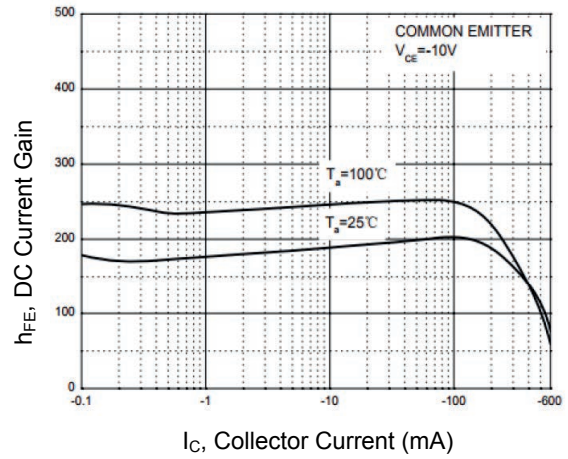
Notes:

1. Pulse test: Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2.0\%$ .
2.  $f_T$  is defined as the frequency at which  $|h_{FE}|$  extrapolates to unity.

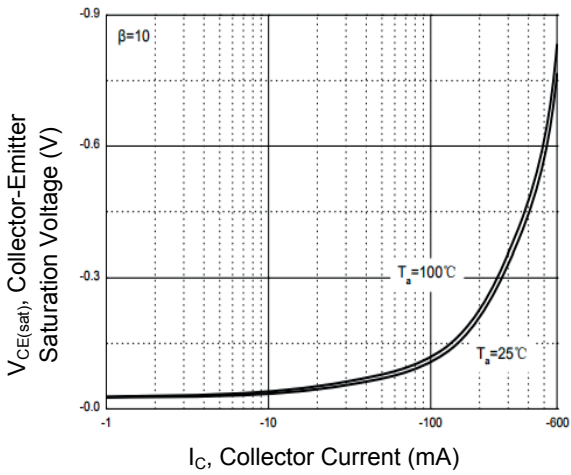
**Typical Characteristics Curves**



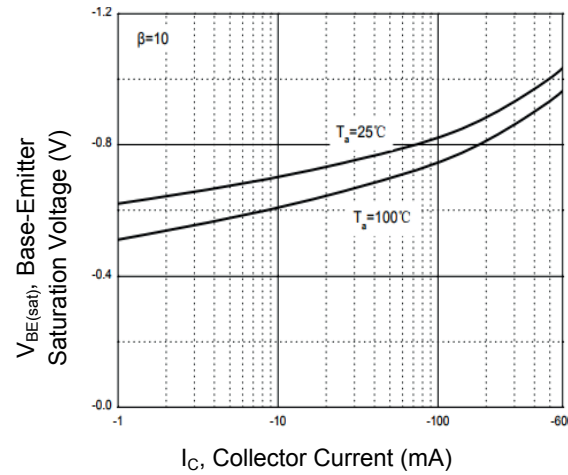
**Figure 1. Static Characteristic**



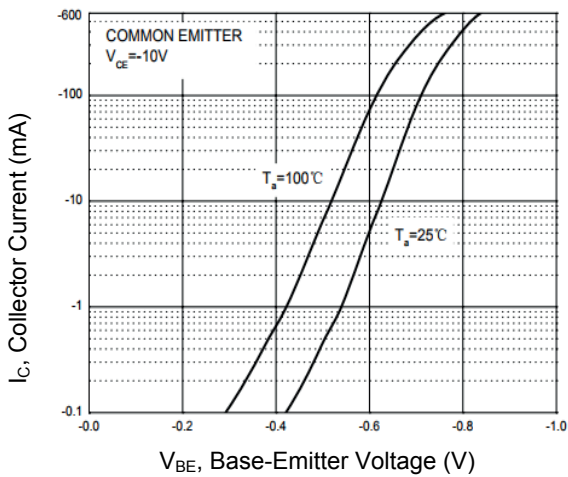
**Figure 2. DC Current Gain vs. Collector Current**



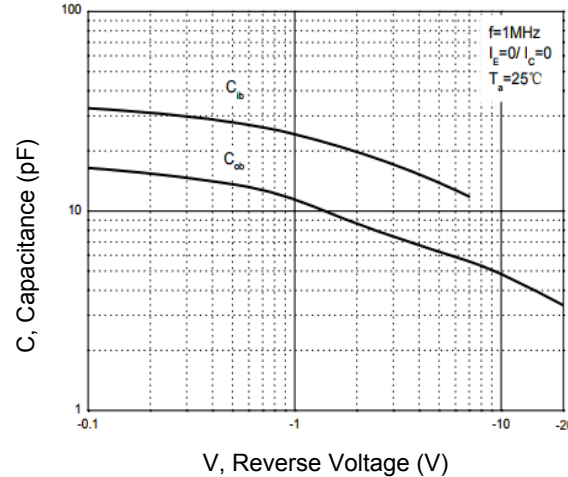
**Figure 3. Collector-Emitter Saturation Voltage vs. Collector Current**



**Figure 4. Base-Emitter Saturation Voltage vs. Collector Current**

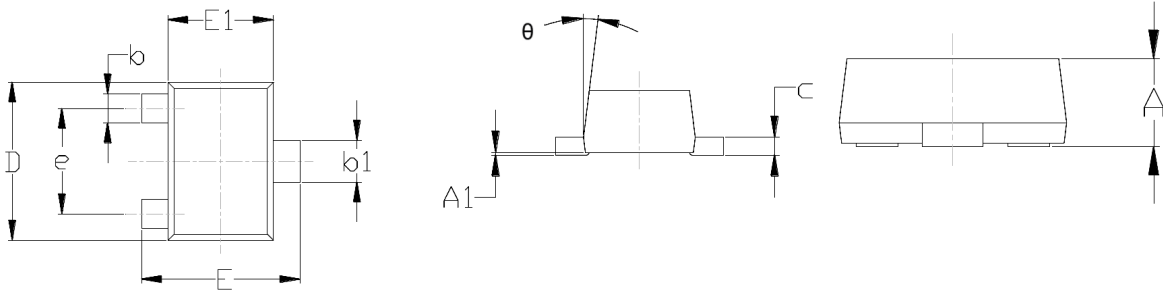


**Figure 5. Collector Current vs. Base-Emitter Voltage**



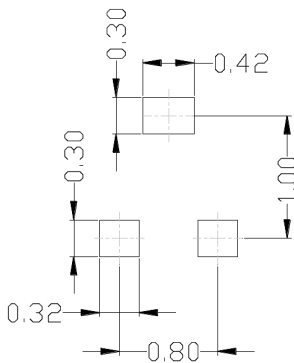
**Figure 6. Capacitance Characteristics**

**Package Outline Dimensions (SOT-723)**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800 TYP.		0.031 TYP.	
θ	0°	7°	0°	7°

**Recommended Pad Layout**



**Note:**

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference purposes only

**Order Information**

Device	Package	Marking	Packaging	SPQ
GSM MBT2907AM	SOT-723	AC	Tape & Reel	8,000 pcs / Reel