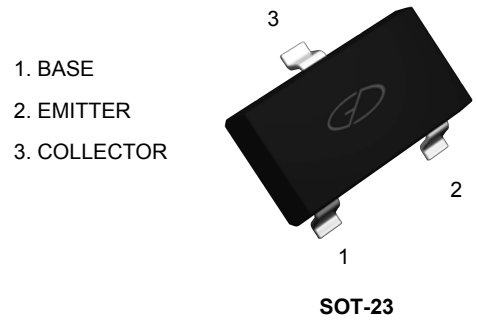


Features

- Power dissipation of 300mW
- High stability and high reliability

Mechanical Data

- SOT-23 small outline plastic package
- Epoxy UL: 94V-0
- Mounting position: Any



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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	-160	V
Collector-Emitter Voltage	V_{CEO}	-150	V
Emitter-Base Voltage	V_{EB0}	-5	V
Collector Current (Continuous)	I_C	-600	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	416	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-55 To +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	Conditions	Min.	Max.	Unit
On / Off Characteristics					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-100\mu\text{A}, I_E=0$	-160	-	V
Collector-Emitter Breakdown Voltage ¹	$V_{(BR)CEO}$	$I_C=-1\text{mA}, I_B=0$	-150	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-5	-	V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=-120\text{V}, I_E=0$	-	-100	nA
Base Cut-Off Current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0$	-	-100	nA
DC Current Gain ¹	$h_{FE}(1)$	$V_{CE}=-5\text{V}, I_C=-1\text{mA}$	80	-	-
	$h_{FE}(2)$	$V_{CE}=-5\text{V}, I_C=-10\text{mA}$	100	300	-
	$h_{FE}(3)$	$V_{CE}=-5\text{V}, I_C=-50\text{mA}$	30	-	-
Collector-Emitter Saturation Voltage ¹	$V_{CE(sat)1}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$	-	-0.2	V
	$V_{CE(sat)2}$	$I_C=-50\text{mA}, I_B=-5\text{mA}$	-	-0.5	V
Base-Emitter Saturation Voltage ¹	$V_{BE(sat)1}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$	-	-1	V
	$V_{BE(sat)2}$	$I_C=-50\text{mA}, I_B=-5\text{mA}$	-	-1	V
Transition Frequency	f_T	$I_C=10\text{mA}, V_{CE}=-5\text{V}, f=30\text{MHz}$	100	-	MHz

Note:

1. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$

CLASSIFICATION OF $h_{FE}(2)$

h_{FE}	100-300	
Rank	L	H
Range	100-200	200-300

Typical Electrical and Thermal Characteristic Curves

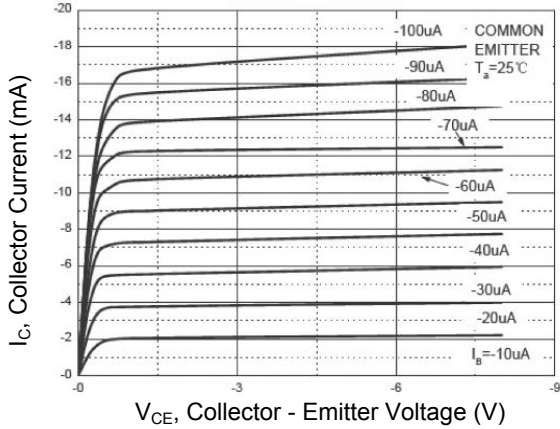


Figure 1. Static Characteristic

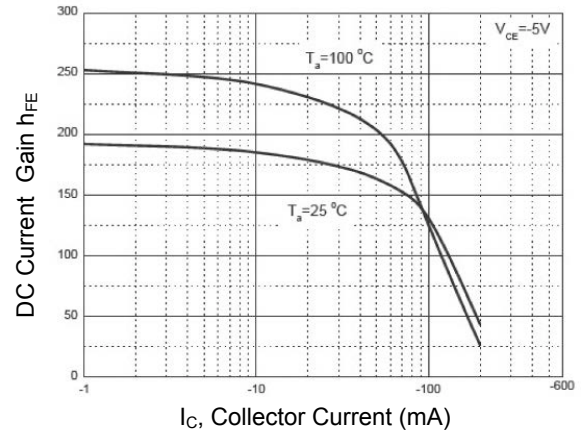


Figure 2. DC Current Gain vs. Collector Current

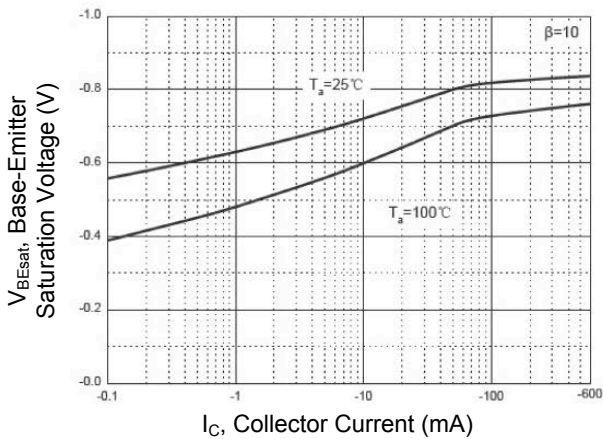


Figure 3. Base - Emmitter Saturation Voltage vs. Collector Current

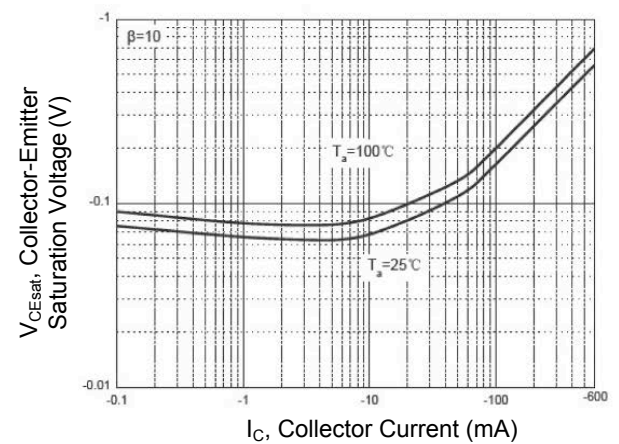


Figure 4. Collector - Emmitter Saturation Voltage vs. Collector Current

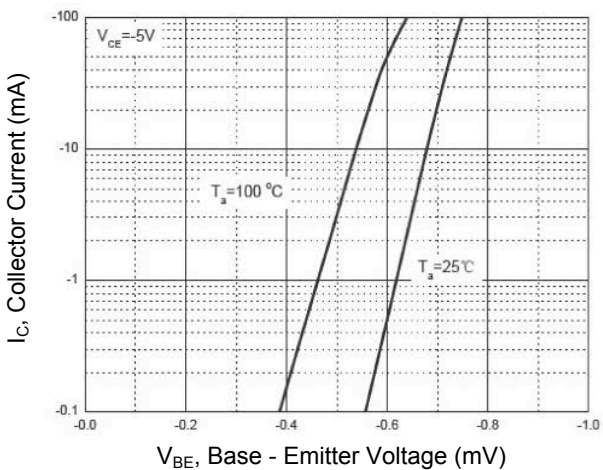


Figure 5. Collector Current vs. Base - Emmitter Voltage

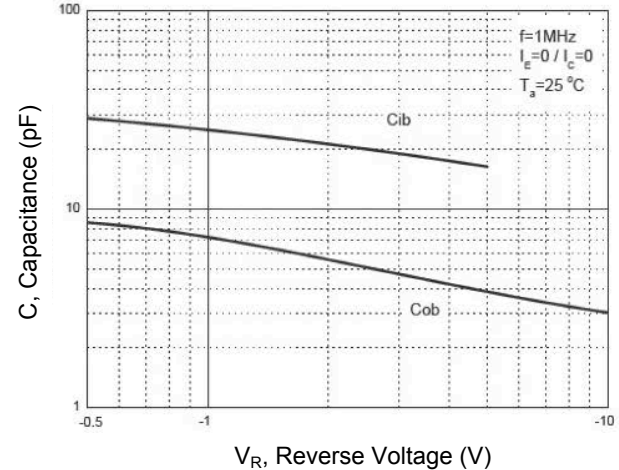


Figure 6. Capacitance Characteristics

Typical Electrical and Thermal Characteristic Curves

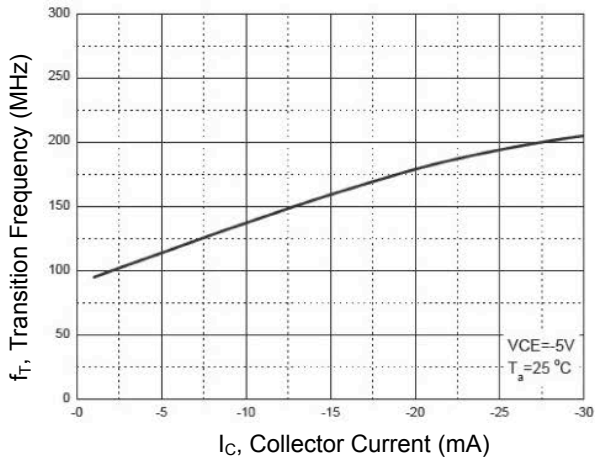


Figure 7. Transition Frequency vs. Collector Current

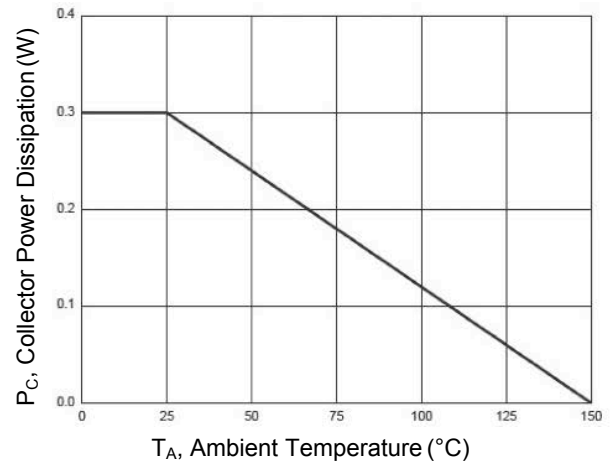
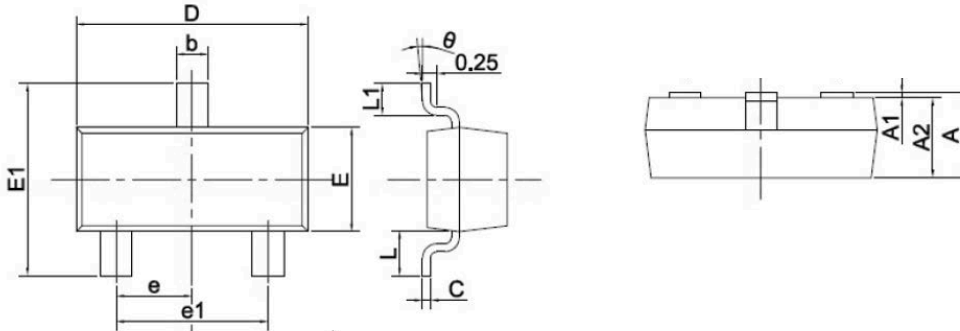


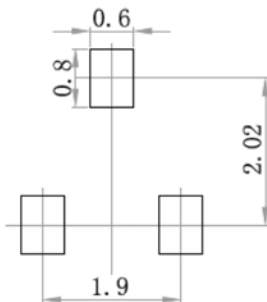
Figure 8. Power Dissipation vs Ambient Temperature

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Recommended Pad Layout



Note:

1. Controlling dimensions: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

Order Information

Device	Package	Marking	Carrier	Quantity
GSMMBT5401	SOT-23	2L	Tape & Reel	3,000 pcs / Reel