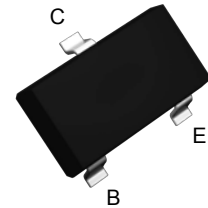


Features

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



SOT-23

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_{CE0}	-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_{FE1}	$V_{CE}=-5\text{V}, I_C=-1\text{mA}$	80	-	-
	h_{FE2}	$V_{CE}=-5\text{V}, I_C=-10\text{mA}$	100	300	-
	h_{FE3}	$V_{CE}=-5\text{V}, I_C=-50\text{mA}$	30	-	-
Collector-Emitter Saturation Voltage ¹	$V_{CE(sat)}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$	-	-0.2	V
		$I_C=-50\text{mA}, I_B=-5\text{mA}$	-	-0.5	V
Base-Emitter Saturation Voltage ¹	$V_{BE(sat)}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$	-	-1	V
		$I_C=-50\text{mA}, I_B=-5\text{mA}$	-	-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 $\leq 2.0\%$

Typical Electrical and Thermal Characteristic Curves

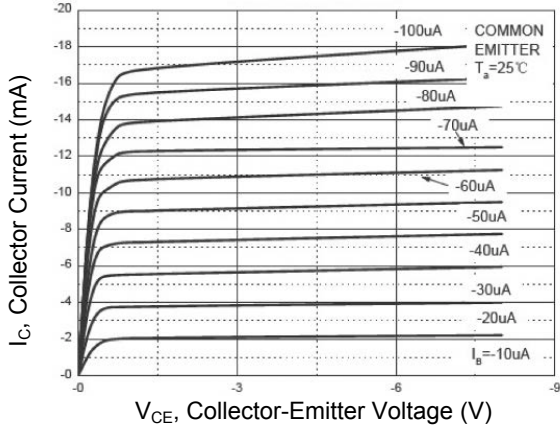


Figure 1. Static Characteristic

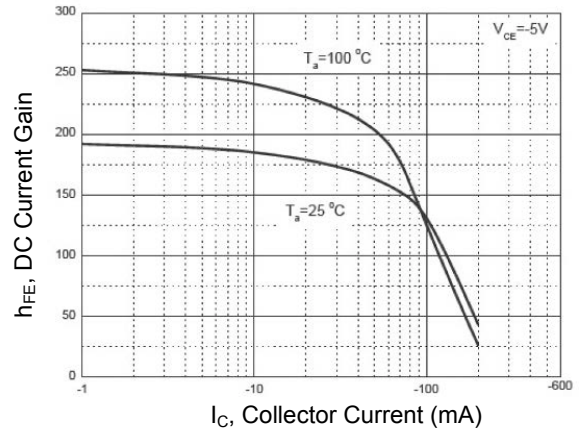


Figure 2. DC Current Gain vs. Collector Current

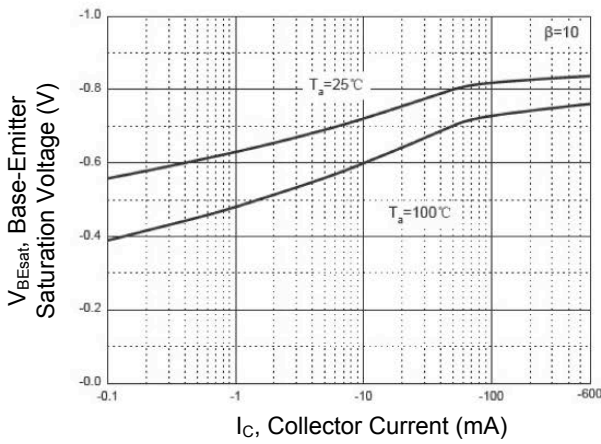


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

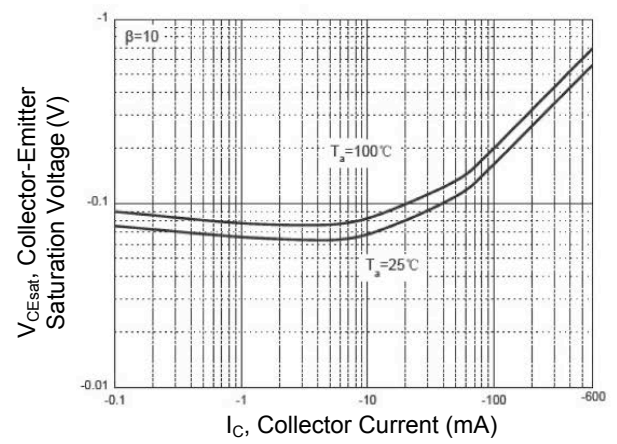


Figure 4. Collector-Emitter Saturation Voltage vs. Collector Current

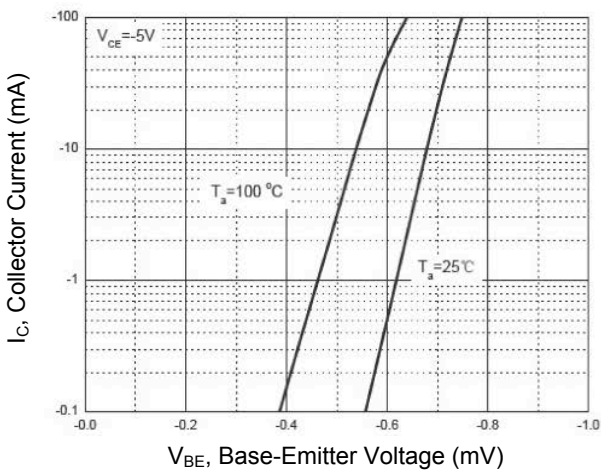


Figure 5. Collector Current vs. Base-Emitter Voltage

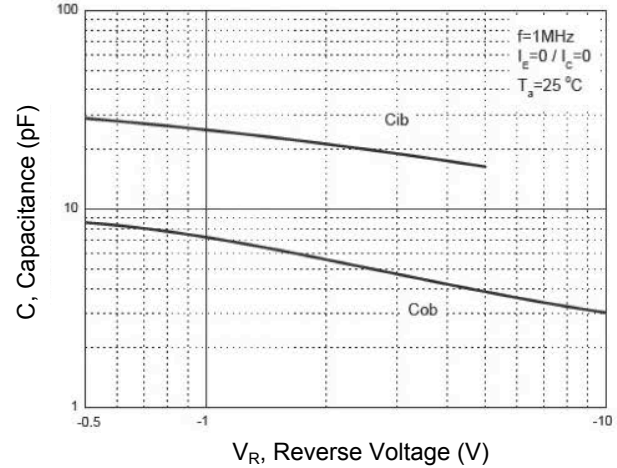


Figure 6. Capacitance Characteristics

Typical Electrical and Thermal Characteristic Curves

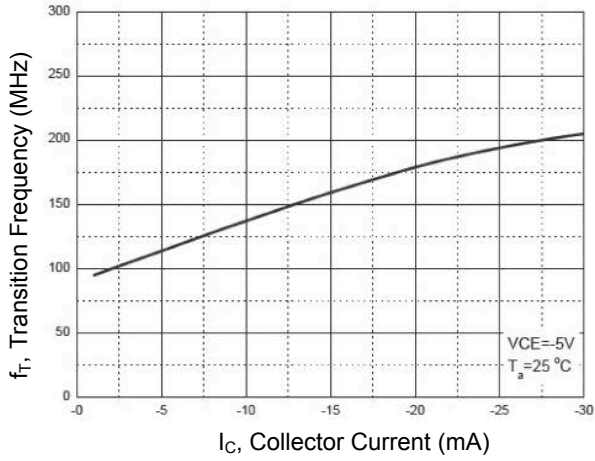


Figure 7. Transition Frequency vs. Collector Current

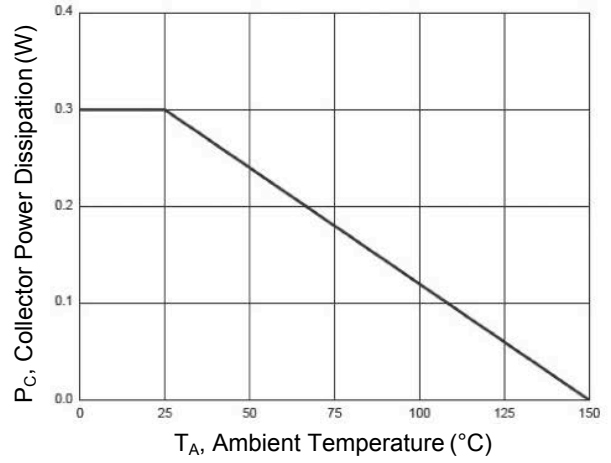
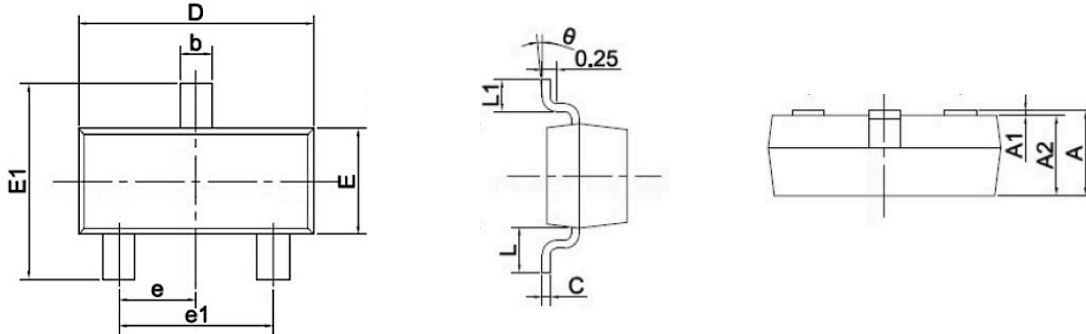


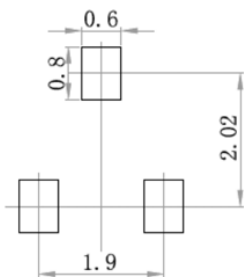
Figure 8. Collector Power Dissipation vs. Ambient Temperature

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: ±0.05mm.
3. The pad layout is for reference purposes only.

Order Information

Device	Package	Marking	Packaging	SPQ
GSM MBT5401	SOT-23	2L	Tape & Reel	3,000 Pcs / Reel

For more information, please contact us at: inquiry@goodarksemi.com