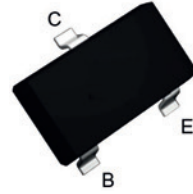
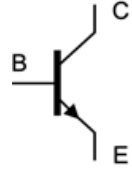


Features

- High speed switching



SOT-23



Schematic Diagram

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	40	V
Collector Emitter Voltage	V_{CEO}	15	V
Collector Emitter Voltage	V_{CES}	40	V
Emitter Base Voltage	V_{EBO}	4.5	V
Collector Current Continuous	I_C	200	mA
Total Device Dissipation	P_{tot}	225	mW
Max. Thermal Resistance from Junction to Ambient ¹	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

Note:

1. Device mounted on FR-4 PCB with minimum recommended pad layout.

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

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
DC Current Gain	GSMMBT2369	h_{FE}	$V_{CE}=1\text{V}, I_C=10\text{mA}$	40	-	120	-
	GSMMBT2369A		$V_{CE}=1\text{V}, I_C=10\text{mA}$	-	-	120	-
	GSMMBT2369A		$V_{CE}=0.35\text{V}, I_C=10\text{mA}$	40	-	-	-
	GSMMBT2369A		$V_{CE}=0.4\text{V}, I_C=30\text{mA}$	30	-	-	-
	GSMMBT2369		$V_{CE}=2\text{V}, I_C=100\text{mA}$	20	-	-	-
	GSMMBT2369A		$V_{CE}=1\text{V}, I_C=100\text{mA}$	20	-	-	-
Collector Cutoff Current	GSMMBT2369A	I_{CES}	$V_{CE}=20\text{V}$	-	-	0.4	μA
Collector Cutoff Current		I_{CBO}	$V_{CB}=20\text{V}$	-	-	0.4	μA
Collector Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C=10\text{mA}$	15	-	-	V
Collector Base Breakdown Voltage		$V_{(BR)CBO}$	$I_C=10\mu\text{A}$	40	-	-	V
Collector Emitter Breakdown Voltage		$V_{(BR)CES}$	$I_C=10\mu\text{A}$	40	-	-	V
Emitter Base Breakdown Voltage		$V_{(BR)EBO}$	$I_E=10\mu\text{A}$	4.5	-	-	V
Collector Emitter Saturation Voltage	GSMMBT2369	$V_{CE(sat)}$	$I_C=10\text{mA}, I_B=1\text{mA}$	-	-	0.25	V
	GSMMBT2369A		$I_C=10\text{mA}, I_B=1\text{mA}$	-	-	0.2	
	GSMMBT2369A		$I_C=30\text{mA}, I_B=3\text{mA}$	-	-	0.25	
	GSMMBT2369A		$I_C=100\text{mA}, I_B=10\text{mA}$	-	-	0.5	
Base Emitter Saturation Voltage	GSMMBT2369A	$V_{BE(sat)}$	$I_C=10\text{mA}, I_B=1\text{mA}$	0.7	-	0.85	V
	GSMMBT2369A		$I_C=30\text{mA}, I_B=3\text{mA}$	-	-	1.15	
	GSMMBT2369A		$I_C=100\text{mA}, I_B=10\text{mA}$	-	-	1.6	
Output Capacitance		C_{ob}	$V_{CB}=5\text{V}, f=1\text{MHz}$	-	-	4	pF
Storage Time		t_s	$V_{CC}=3\text{V}, I_{B1}=I_{B2}=I_C=10\text{mA}$	-	5.0	13	ns
Turn-On Time		t_{on}	$V_{CC}=3\text{V}, I_C=10\text{mA}, I_{B1}=3\text{mA}$	-	8.0	12	ns
Turn-Off Time		t_{off}	$V_{CC}=3\text{V}, I_C=10\text{mA}, I_{B1}=3\text{mA}, I_{B2}=1.5\text{mA}$	-	10	18	ns

Typical Electrical Characteristic Curves

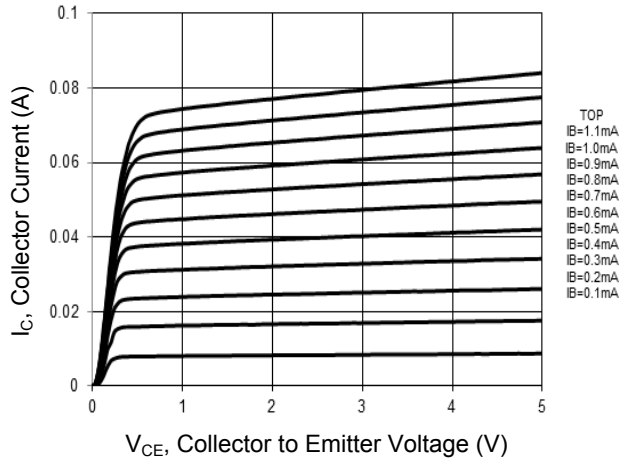


Figure 1. Output Characteristics Curve

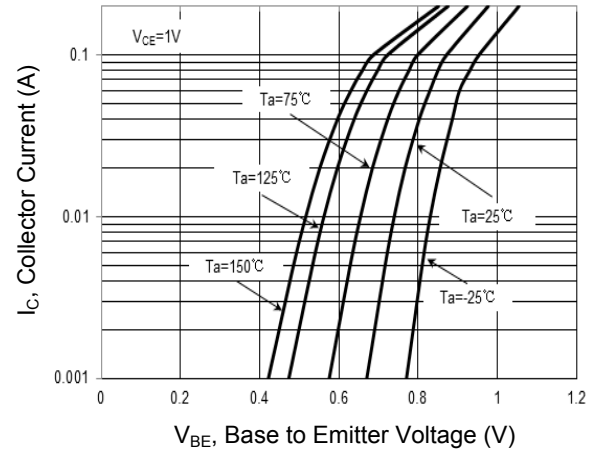


Figure 2. Collector Current vs. V_{BE}

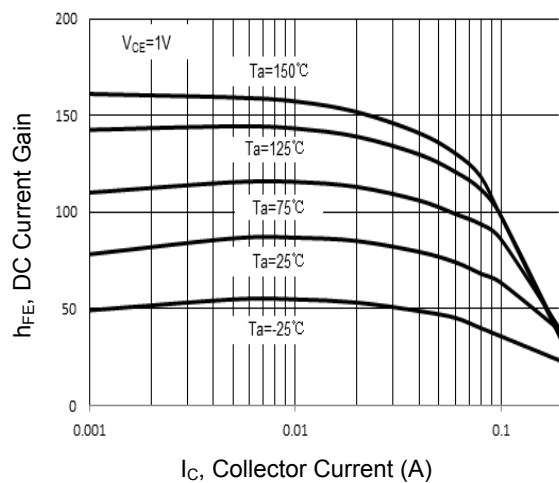


Figure 3. h_{FE} vs. Collector Current

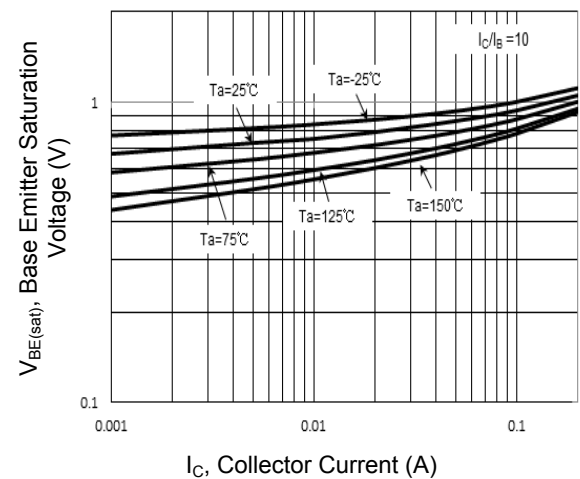


Figure 4. $V_{BE(sat)}$ vs. Collector Current

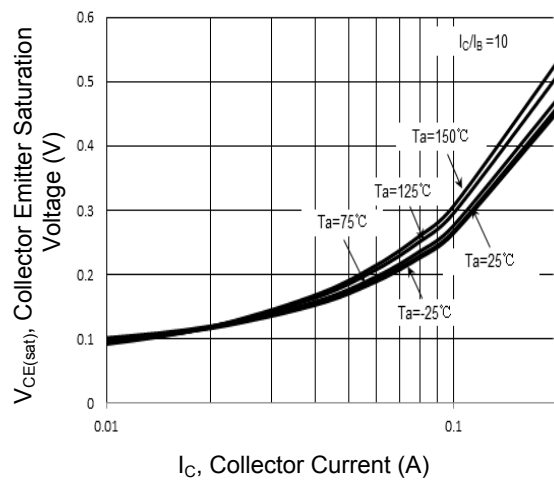


Figure 5. $V_{CE(sat)}$ vs. Collector Current

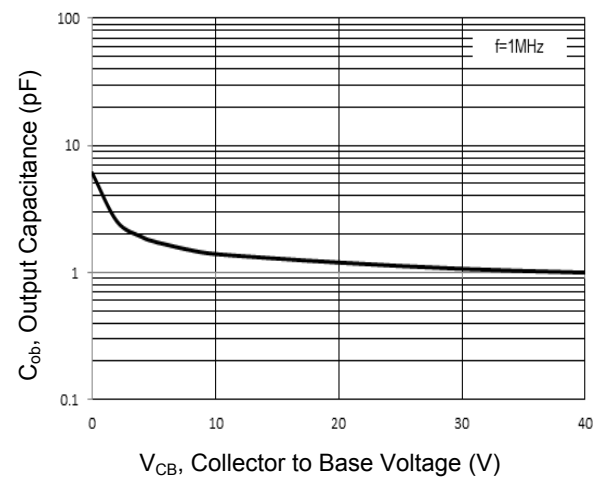


Figure 6. Output Capacitance

Typical Electrical Characteristic Curves

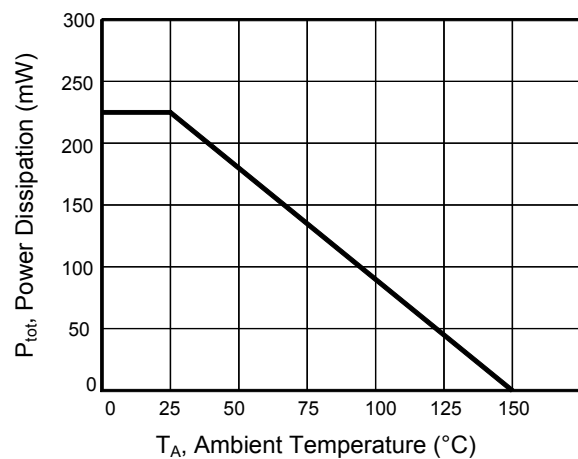
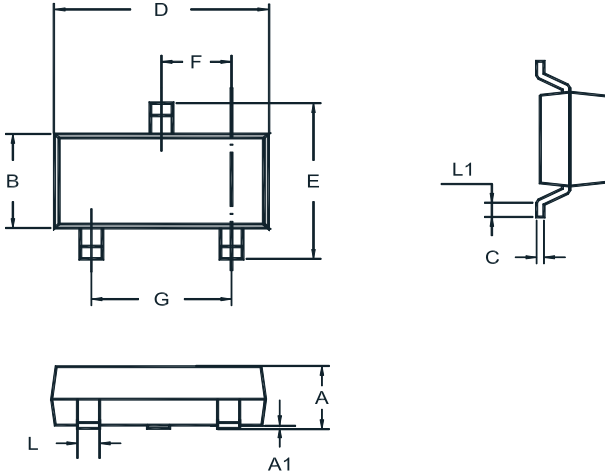


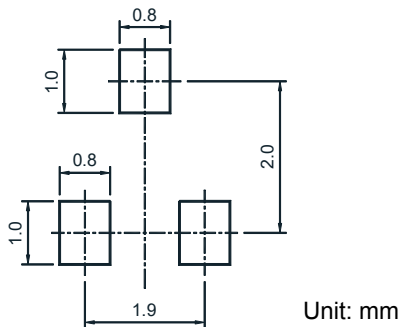
Figure 7. Power Derating Curve

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.890	1.200	0.035	0.047
A1	0.013	0.100	0.001	0.004
B	1.200	1.400	0.047	0.055
C	0.080	0.190	0.003	0.007
D	2.800	3.040	0.110	0.120
E	2.200	2.600	0.087	0.102
F	0.890	1.020	0.035	0.040
G	1.780	2.040	0.070	0.080
L	0.370	0.510	0.015	0.020
L1	0.200	-	0.008	-

Recommended Pad Layout



Order Information

Device	Package	Marking	Carrier	Quantity
GSMMBT2369	SOT-23	1J	Tape & Reel	3,000pcs / Reel
GSMMBT2369A	SOT-23	1J	Tape & Reel	3,000pcs / Reel