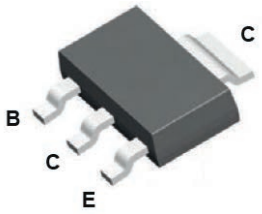
GOOD-ARK SEMICONDUCTOR

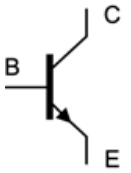
GSFZT851
NPN Transistor

Features

- High continuous collector current
- Low saturation voltage



SOT-223



Schematic Diagram

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	150	V
Collector Emitter Voltage	V_{CEO}	60	V
Emitter Base Voltage	V_{EBO}	7	V
Collector Current	I_C	6	A
Peak Collector Current, Pulsed	I_{CM}	12	A
Total Power Dissipation[1]	P_{tot}	1.6	W
Max. Thermal Resistance from Junction to Ambient[1]	$R_{\theta JA}$	78.0	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

Note:

1. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=100μA	150	-	-	V
Collector Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=10mA	60	-	-	V
Emitter Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=100μA	7	-	-	V
Collector Base Cutoff Current	I_{CBO}	V_{CB}=120V	-	-	50	nA
Emitter Base Cutoff Current	I_{EBO}	V_{EB}=6V	-	-	25	nA
DC Current Gain	h_{FE}	V_{CE}=1V, I_C=2A	100	-	300	-
		V_{CE}=1V, I_C=5A	75	-	-	-
		V_{CE}=1V, I_C=10A	25	-	-	-
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=0.1A, I_B=5mA	-	-	50	mV
		I_C=6A, I_B=300mA	-	-	375	mV
Base Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=6A, I_B=300mA	-	-	1.2	V
Base Emitter Turn-on Voltage	$V_{BE(on)}$	V_{CE}=1V, I_C=6A	-	-	1.15	V
Transition Frequency	f_T	V_{CE}=10V, I_C=100mA, f=100MHz	-	100	-	MHz
Collector Output Capacitance	C_{ob}	V_{CB}=10V, f=1MHz	-	35	-	pF

Electrical Characteristic Curves

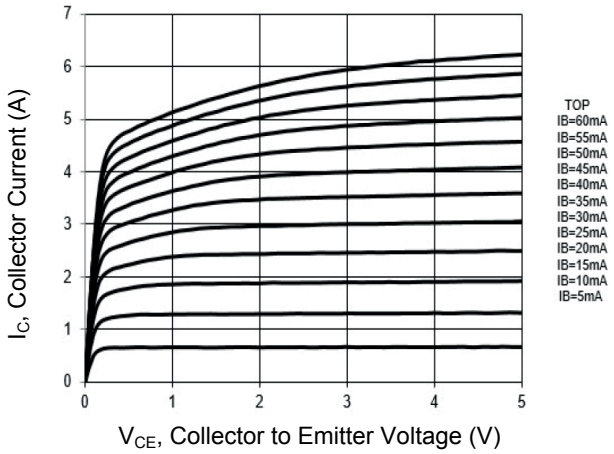


Figure 1. Output Characteristics Curve

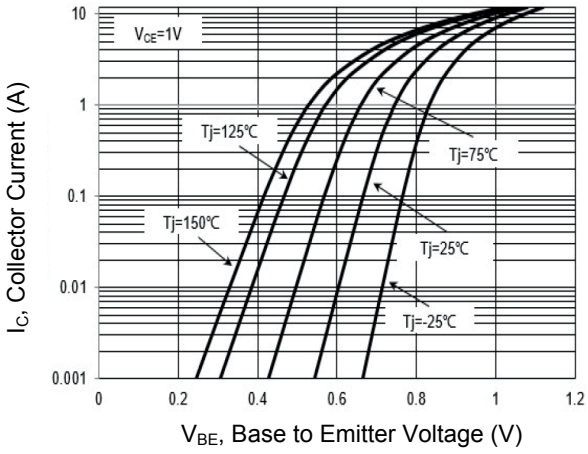


Figure 2. Collector Current vs. Base to Emitter Voltage

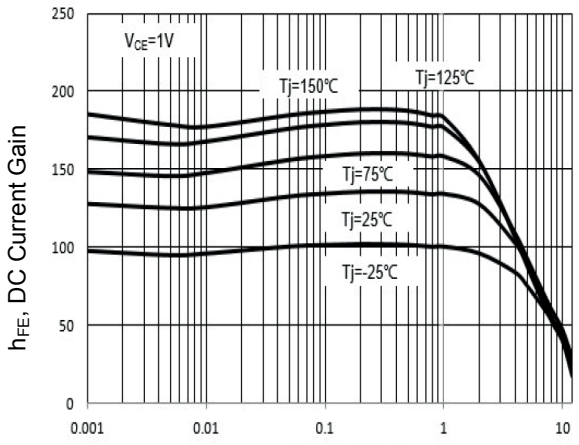


Figure 3. DC Current Gain vs. Collector Current

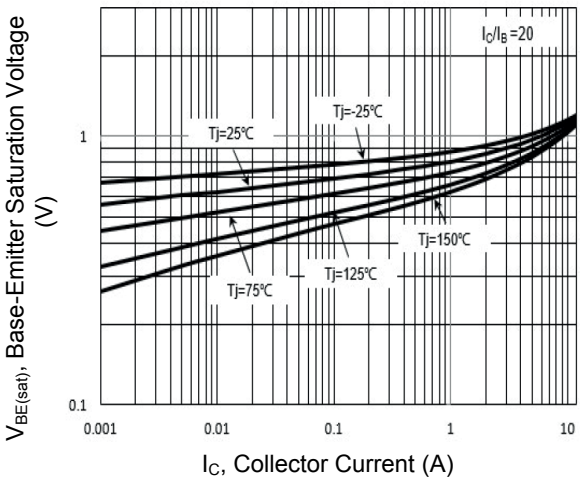


Figure 4. Base-Emitter Saturation Voltage vs. Collector Current

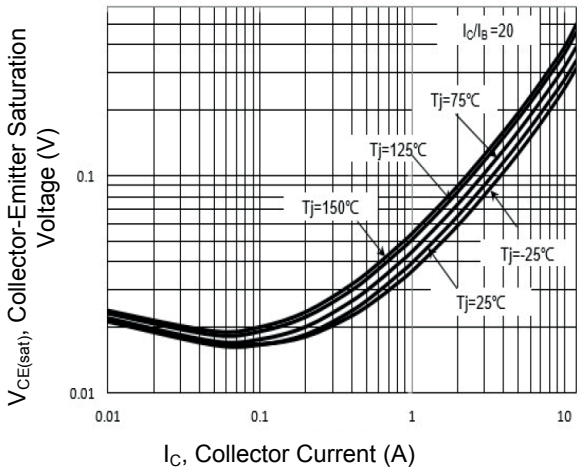


Figure 5. Collector-Emitter Saturation Voltage vs. Collector Current

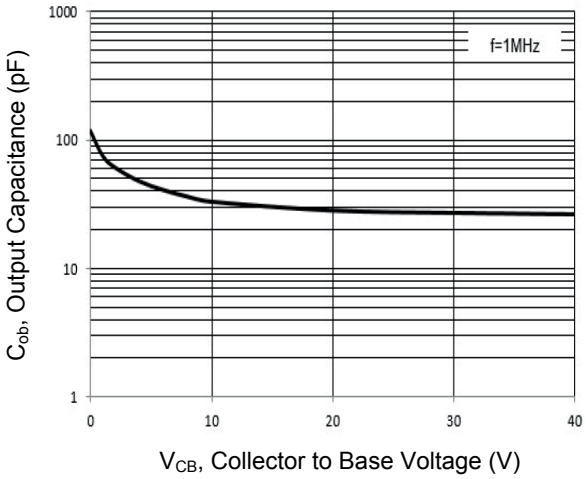


Figure 6. Output Capacitance

Electrical Characteristic Curves

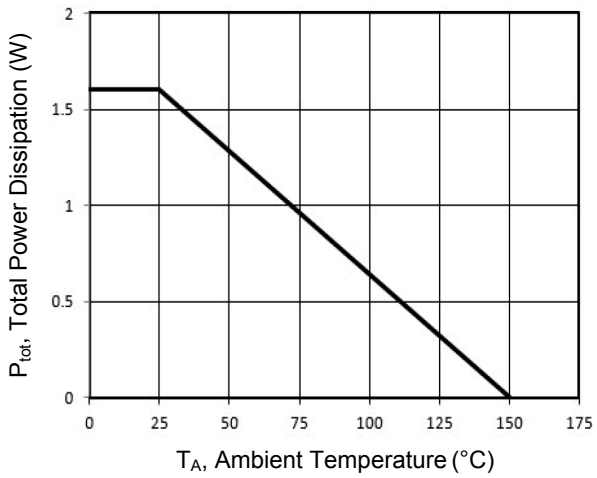
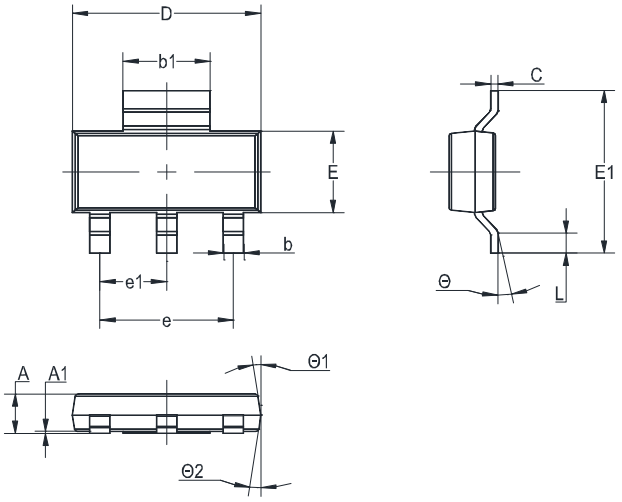


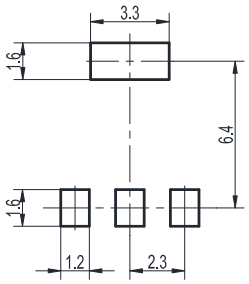
Figure 7. Power Derating Curve

Package Outline Dimensions (SOT-223)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.50	1.80	0.059	0.071
A1	-	0.10	-	0.004
b	0.60	0.80	0.024	0.031
b1	2.90	3.10	0.114	0.122
C	0.22	0.32	0.009	0.013
D	6.30	6.70	0.248	0.264
E	3.30	3.70	0.130	0.146
E1	6.70	7.30	0.264	0.287
e	4.60 TYP		0.181 TYP	
e1	2.30 TYP		0.091 TYP	
L	0.70	1.10	0.028	0.043
θ	0°	10°	0°	10°
θ1	0°	7°	0°	7°
θ2	0°	7°	0°	7°

Recommended Pad Layout



unit: mm

Order Information

Device	Package	Marking	Packaging	SPQ
GSFZT851	SOT-223	FZT851Q	Tape & Reel	3,000pcs / Reel