SOT-23 Plastic-Encapsulate Transistors

Features

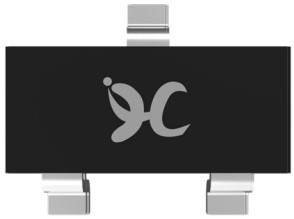
- Complementary toFMMT593
- Power dissipation of 500mW
- High stability and high reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Collector-Base Voltage
VCBO 120V
Collector Current
1.0 Ampere

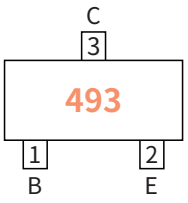
Mechanical Data

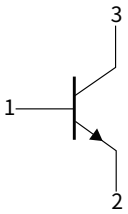
- Case: SOT-23
  Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

SOT-23



Function Diagram





Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V_{CBO}	V	120
Collector-Emitter Voltage	V_{CEO}		100
Emitter-Base Voltage	V_{EBO}		5.0
Collector Current	I_C	A	1.0
Collector Power Dissipation	P_C	mW	500
Storage temperature	T_{stg}	°C	-55 ~+150
Junction temperature	T_j	°C	-55 ~+150
Typical Thermal Resistance	$R_{\theta J-A}$	°C /W	417

Electrical Characteristics (Ta=25°C Unless otherwise noted)

PARAMETER	SYMBOL	UNIT	Condition	Min	Max
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	I_C=100μA, I_E=0	120	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		I_C=10mA, I_B=0	100	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		I_E=100μA, I_C=0	5.0	—
Collector-Emitter cut-off current	I_{CEO}	nA	V_{CE}= 100V, I_E=0	—	100
Collector-Base cut-off current	I_{CBO}		V_{CB}= 100V,I_E=0	—	100
Emitter-Base cut-off current	I_{EBO}		V_{EB}= 4.0V,I_C=0	—	100
DC Current Gain	$h_{FE(1)}$	—	I_C= 1.0mA V_{CE}= 10V	100	—
	$h_{FE(2)}$		I_C= 250mA V_{CE}= 10V	100	300
	$h_{FE(3)}$		I_C= 500mA V_{CE}= 10V	60	—
	$h_{FE(4)}$		I_C= 1.0A V_{CE}= 10V	20	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	I_C= 1.0A I_B= 100mA	—	0.6
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V	I_C= 1.0A I_B= 100mA	—	1.15

Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Max
Transition frequency	f_T	I_C= 50mA, V_{CE}= 10V,f=100MHz	MHz	150	—

Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	45000	180000	7''

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

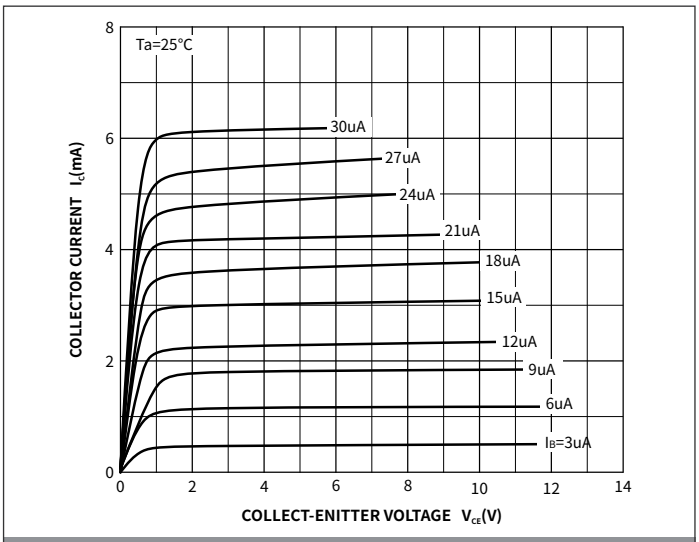


Fig.1 Static Characteristic

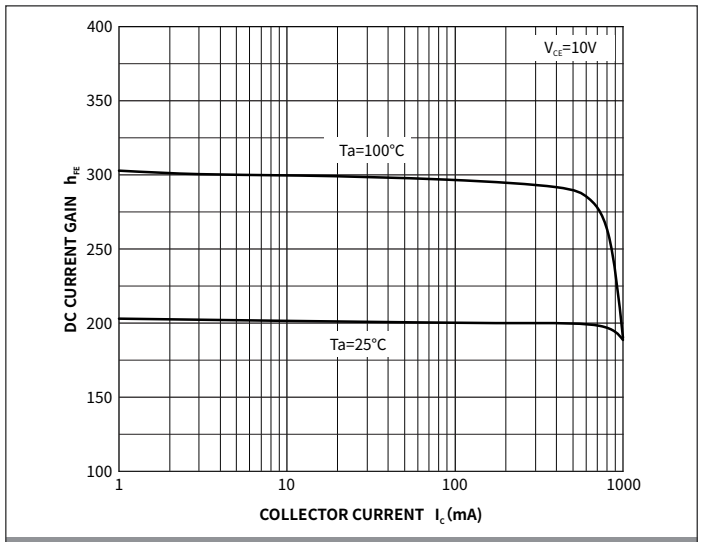


Fig.2 DC Current Gain

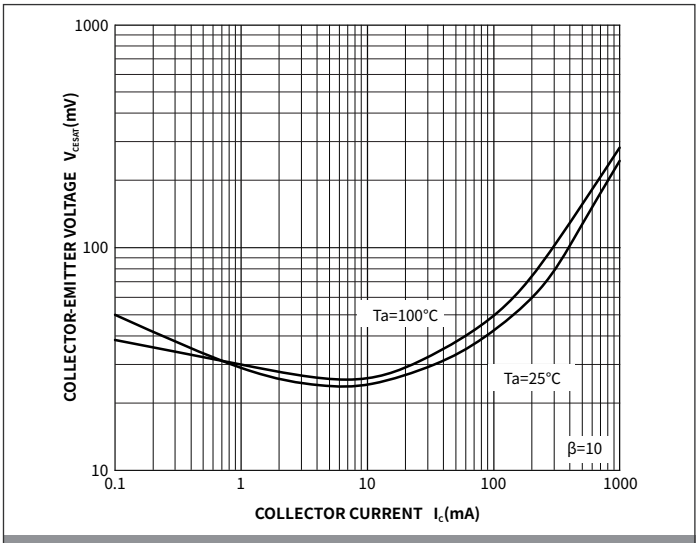


Fig.3 Collector-Emitter Saturation Voltage

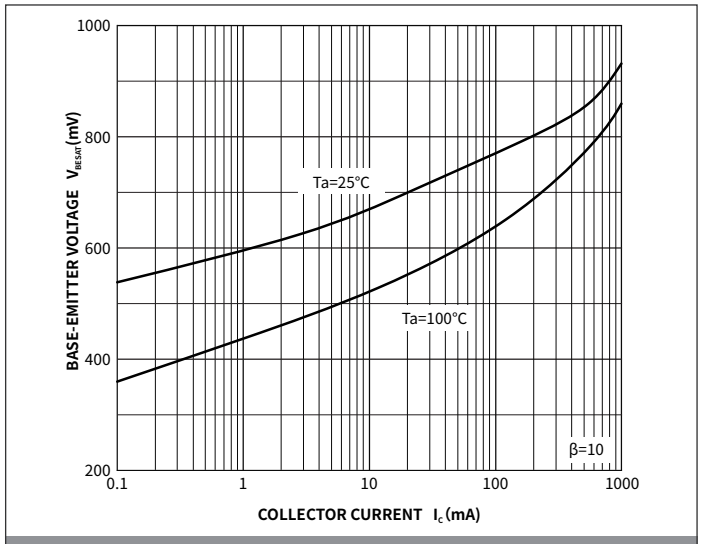


Fig.4 Base-Emitter Saturation Voltage

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

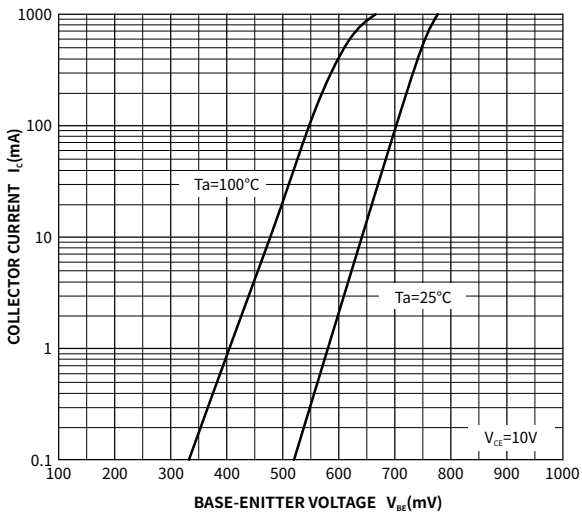


Fig.5 Base-Emitter On Voltage

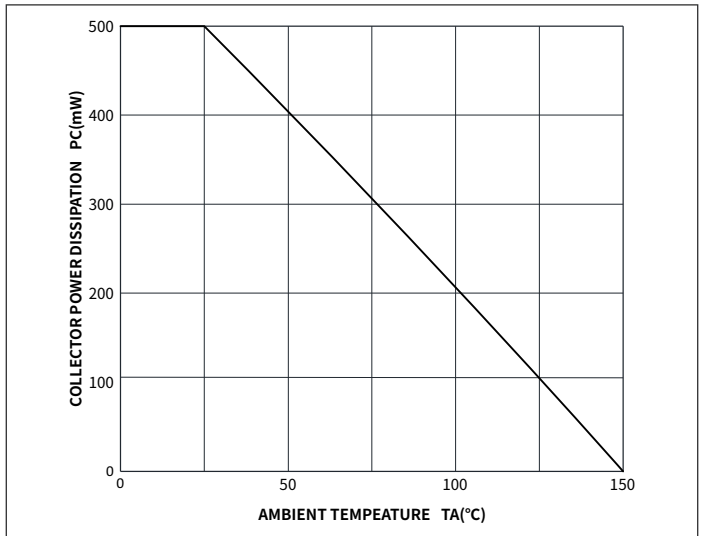
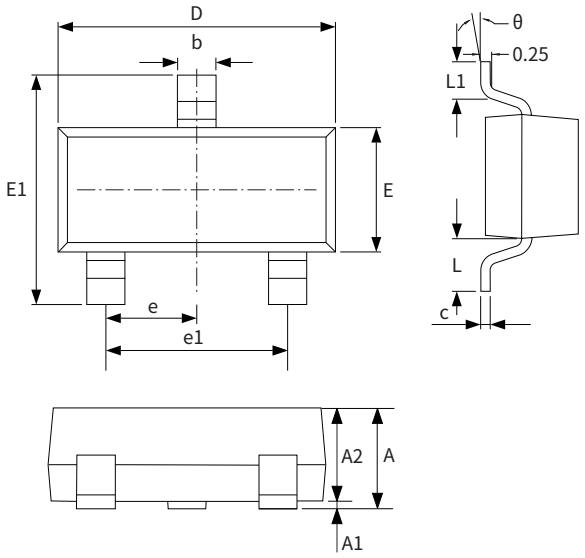


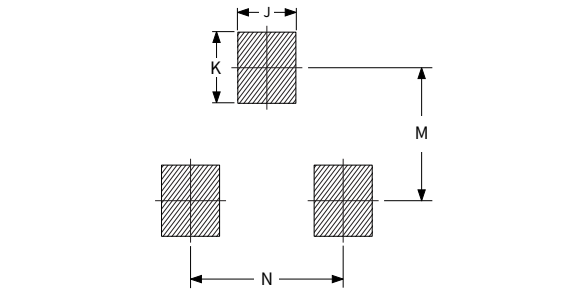
Fig.6 Power Derating Curve

Package Outline Dimensions (SOT-23)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.80	-	0.031	-
K	-	0.90	-	0.035
M	2.00	-	0.078	-
N	-	1.90	-	0.074

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