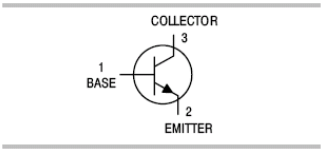
NPN Silicon Epitaxial Planar Transistor

TFMMT491

Features

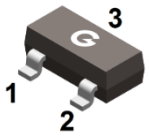
- Low saturation
- Complement to TFMMT591
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF



Mechanical Data

- Case: SOT-23
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-23

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TFMMT491	SOT-23	3000 pcs / Tape & Reel	491

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Breakdown Voltage	V_{CEO}	60	V
Emitter-Base Breakdown Voltage	V_{EBO}	5	V
Collector Current (Continuous)	I_C	1	A
Collector Current (Peak)	I_{CM}	2	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation *1	P_D	0.5	W
Thermal Resistance Junction-to-Air *2	$R_{\theta JA}$	348	°C/W
Thermal Resistance Junction-to-Case *2	$R_{\theta JC}$	171	°C/W
Thermal Resistance Junction-to-Lead *2	$R_{\theta JL}$	122	°C/W
Junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Notes:

1. For a device mounted with the collector lead on 15mm x 15mm 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state
2. The data tested by surface mounted on a 15mm * 15mm * 1mm FR4-epoxy P.C.B

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 100μA, I_E = 0	80	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	60	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100μA, I_C = 0	5	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 60V, I_E = 0	-	-	0.1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 4V, I_C = 0	-	-	0.1	μA
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 1mA	100	-	-	-
		V_{CE} = 5V, I_C = 500mA	100	-	300	-
		V_{CE} = 5V, I_C = 1A	80	-	-	-
		V_{CE} = 5V, I_C = 2A	30	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 0.5A, I_B = 0.05A	-	-	0.25	V
		I_C = 1A, I_B = 0.1A	-	-	0.5	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 1A, I_B = 0.1A	-	-	1.1	V
Base-emitter On Voltage	$V_{BE(on)}$	I_C = 1A, V_{CE} = 5V	-	-	1.0	V
Output Capacity	C_{ob}	V_{CB} = 10V, f = 1MHz	-	-	10	pF
Current-Gain—Bandwidth Product	f_T	I_C = 0.05A, V_{CE} = 10V f = 100MHz	150	-	-	MHz

Ratings and Characteristic Curves (@ T_A = 25℃ unless otherwise specified)

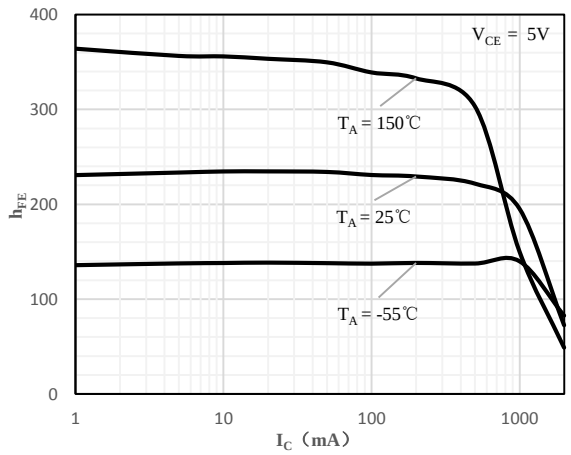


Fig 1 h_{FE} vs. I_C

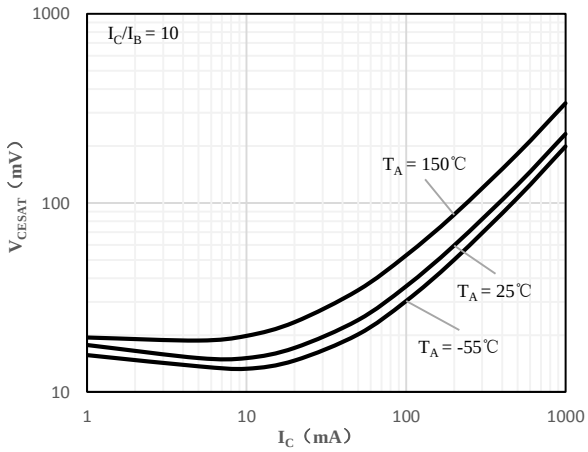


Fig 2 $V_{CE(sat)}$ vs. I_C

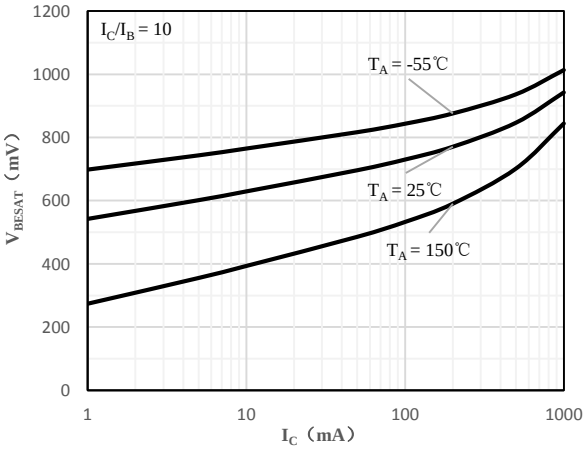


Fig 3 $V_{BE(sat)}$ vs. I_C

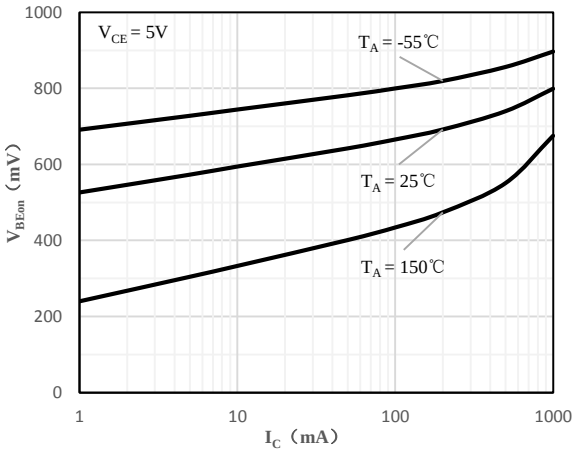
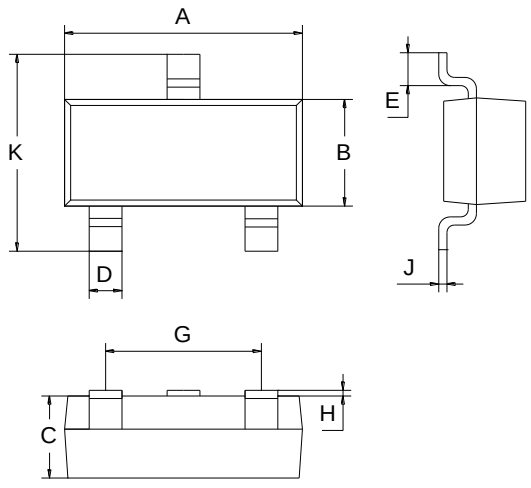


Fig 4 $V_{BE(ON)}$ vs. I_C

Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	**Min.**	**Max.**
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

Package Outline Dimensions (Unit: mm)

SOT-23

