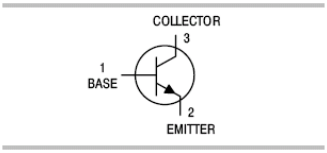
NPN Silicon Epitaxial Planar Transistor

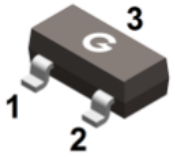
TFMMT495

Features

HF

- BV_{CEO} > 150V
- I_C = 1A continuous collector current
- I_{CM} = 2A peak pulse current
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards





SOT-23

Mechanical Data

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

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TFMMT495	SOT-23	3000 pcs / Tape & Reel	495

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

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	170	V
Collector-Emitter Breakdown Voltage	V_{CEO}	150	V
Emitter-Base Breakdown Voltage	V_{EBO}	7	V
Collector Current (Continuous)	I_C	1	A
Peak Pulse Current	I_{CM}	2	A
Base Current	I_B	0.2	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation *1	P_D	0.5	W
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	250	°C/W
Power Dissipation (T_A = 25°C) *2	P_D	2.8	W
Thermal Resistance Junction-to-Air *2	$R_{\theta JA}$	190	°C/W
Thermal Resistance Junction-to-Case *2	$R_{\theta JC}$	100	°C/W
Thermal Resistance Junction-to-Lead *2	$R_{\theta JL}$	150	°C/W
Junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

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	170	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	150	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100μA, I_C = 0	7	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 150V, I_E = 0	-	-	0.1	μA
Collector Cut-off Current	I_{CES}	V_{CE} = 150V	-	-	0.1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 5V, I_C = 0	-	-	0.1	μA
DC Current Gain	h_{FE}	V_{CE} = 10V, I_C = 1mA	100	-	-	-
		V_{CE} = 10V, I_C = 250mA	100	-	300	-
		V_{CE} = 10V, I_C = 500mA	50	-	-	-
		V_{CE} = 10V, I_C = 1A	10	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 250mA, I_B = 25mA	-	0.085	0.2	V
		I_C = 500mA, I_B = 50mA	-	0.15	0.3	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 500mA, I_B = 50mA	-	-	1.0	V
Base-emitter Voltage	$V_{BE(on)}$	I_C = 500mA, V_{CE} = 10V	-	-	1.0	V
Transition Frequency	f_T	V_{CE} = 10V, I_C = 50mA F = 100MHz	100	-	-	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, f = 1MHz	-	-	10	pF

Notes:

1. For a device surface mounted on 15mm × 15mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions; the device is measured when operating in a steady-state condition
2. The data tested by surface mounted on a 1 $inch^2$ FR-4 board with 2OZ copper

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

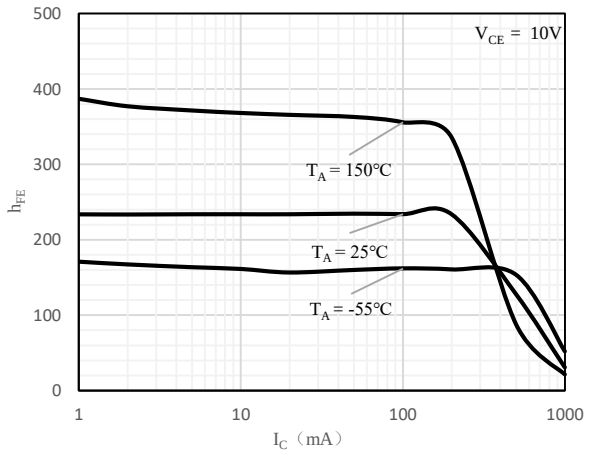


Fig 1 h_{FE} vs. I_C

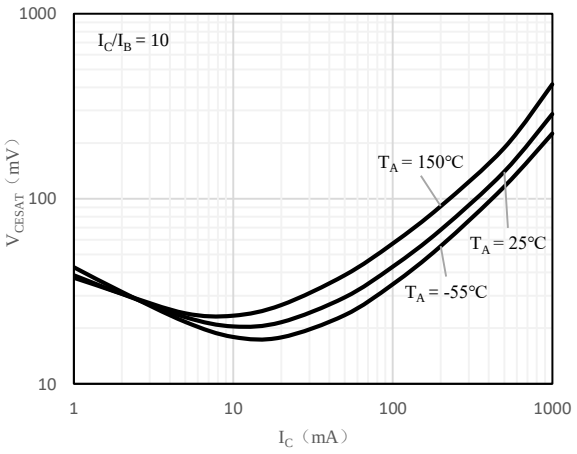


Fig 2 $V_{CE(sat)}$ vs. I_C

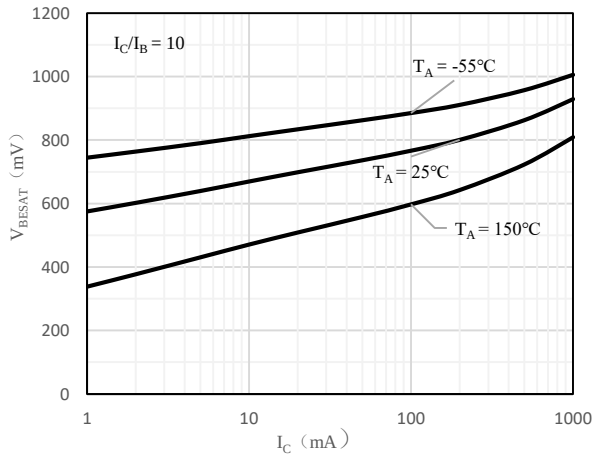


Fig 3 $V_{BE(sat)}$ vs. I_C

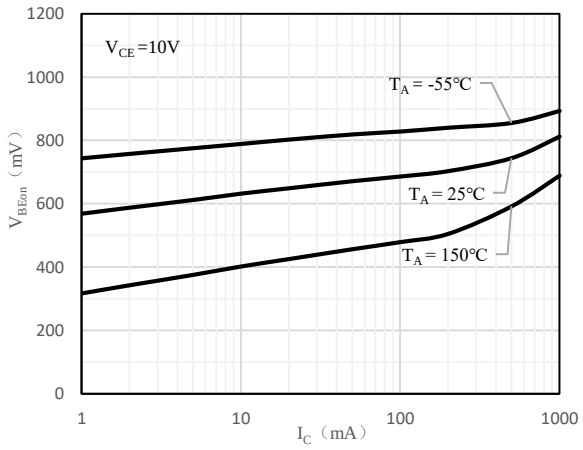


Fig 4 $V_{BE(ON)}$ vs. I_C

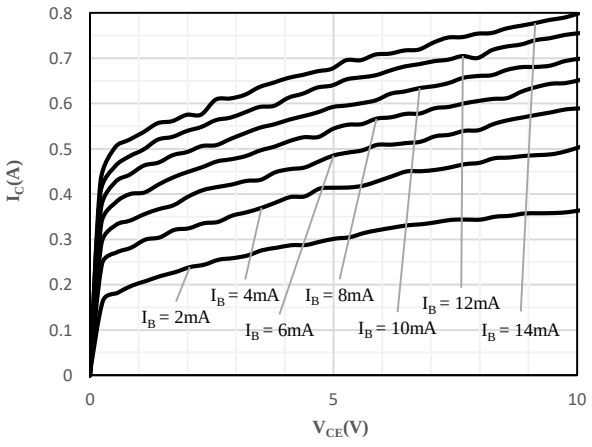


Fig 5 I_C vs. V_{CE}

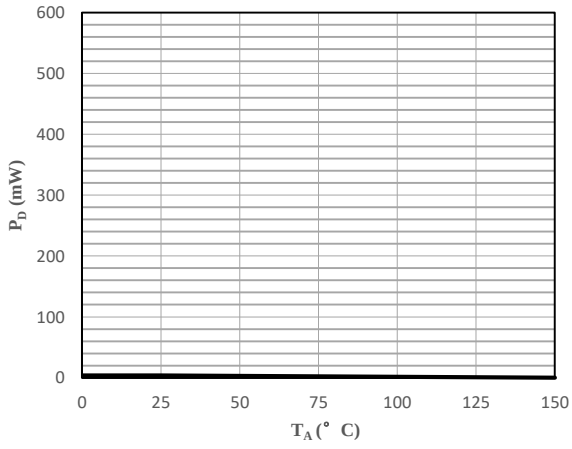


Fig 6 Steady State Power Derating

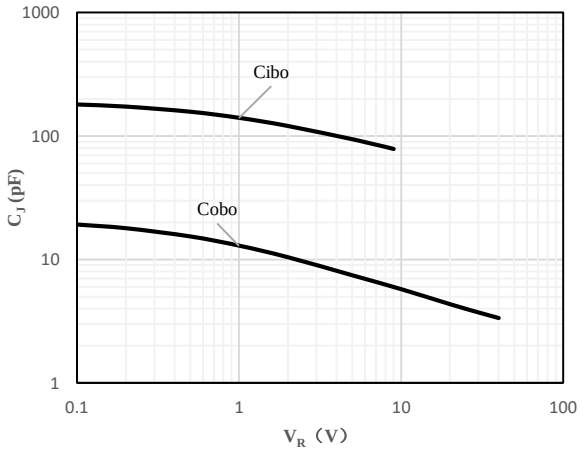
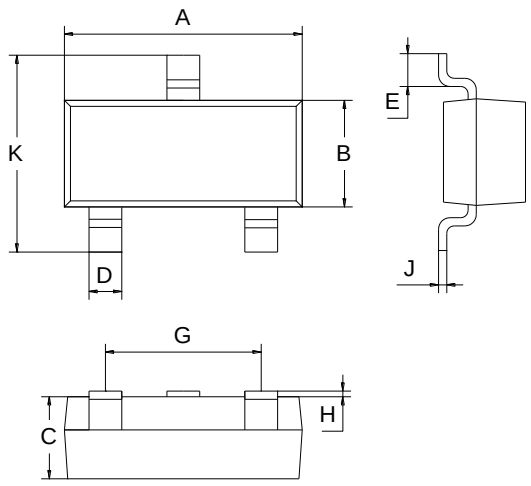


Fig 7 C_J vs. V_R

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

