

# FMMT493A

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## SOT23 60V NPN SILICON PLANAR MEDIUM POWER PLANAR TRANSISTOR

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NPN:  $V_{CEO} = 60V$ ,  $I_C = 1A$ ,  $V_{CE(SAT)} = 0.5V @1A$

### Description:

This 60V NPN transistor provides users with performance combining low saturation and high  $h_{FE}$  with a continuous current capability of 1A, ensuring improved circuit efficiencies.

### Features

Low saturation voltage

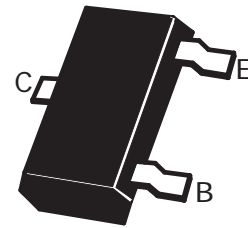
High  $h_{FE}$  min 300 @ 250mA

$I_C = 1A$

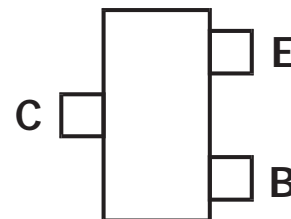
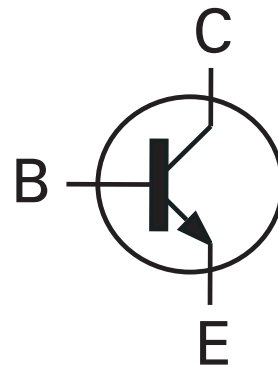
### Applications

- Various driving functions including:-
  - Motors
  - Actuators
  - Solenoid & Relays
- Backlight Inverters.
- DC\_DC Modules.

Device	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
FMMT493ATA	7	8mm embossed	3000 units
FMMT493ATC	13	8mm embossed	10000 units



SOT23



TOP VIEW

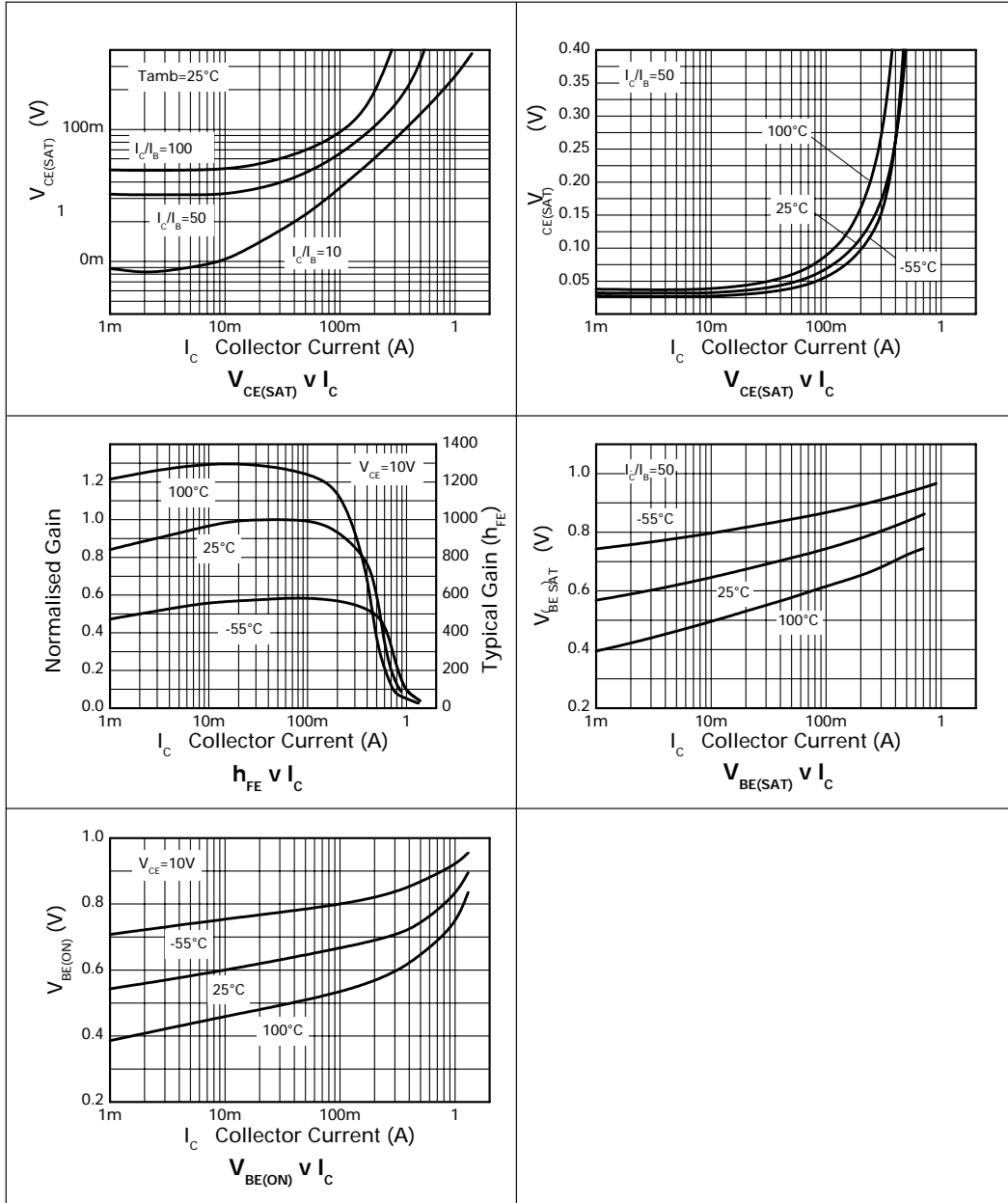
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## ELECTRICAL CHARACTERISTICS (at Tamb = 25°C).

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	120		V	$I_C = 100\mu A$
Collector - Emitter Breakdown Voltage	$V_{CEO(SUS)}$	60		V	$I_C = 10mA^*$
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	5		V	$I_E = 100\mu A$
Collector Cut-Off Current	$I_{CBO}$		100	nA	$V_{CB} = 45V$
Collector Cut-Off Current	$I_{CES}$		100	nA	$V_{CES} = 45V$
Emitter Cut-Off Current	$I_{EBO}$		100	nA	$V_{EB} = 4V$
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$		0.25 0.5	V V	$I_C = 500mA, I_B = 50mA$ $I_C = 1A, I_B = 100mA$
Base - Emitter Saturation Voltage	$V_{BE(SAT)}$		1.15	V	$I_C=1A, I_B = 100mA$
Base Emitter Turn On Voltage	$V_{BE(ON)}$		1.0	V	$I_C = 1A, V_{CE} = 10V$
Static Forward Current Transfer Ratio	$h_{FE}$	300 500 300 100 20	1200		$I_C = 1mA, V_{CE} = 10V$ $I_C = 150mA, V_{CE} = 10V$ $I_C = 250mA, V_{CE} = 10V$ $I_C = 500mA, V_{CE} = 10V$ $I_C = 1A, V_{CE} = 10V$
Transition Frequency	$f_T$	150		Mhz	$I_C = 50mA, V_{CE} = 10V$ $f = 100MHz$
Output Capacitance	$C_{OBO}$		10	pF	$V_{CB} = 10V, f = 1MHz$

\*Measured under pulsed conditions. Pulse width = 300 $\mu$ s. Duty Cycle <2%

ELECTRICAL CHARACTERISTICS



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## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	120	V
Collector-Emitter Voltage	$V_{CEO}$	60	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Continuous Collector Current	$I_C$	1	A
Peak Pulse Current	$I_{CM}$	2	A
Base Current	$I_B$	200	mA
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	500	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^{\circ}C$

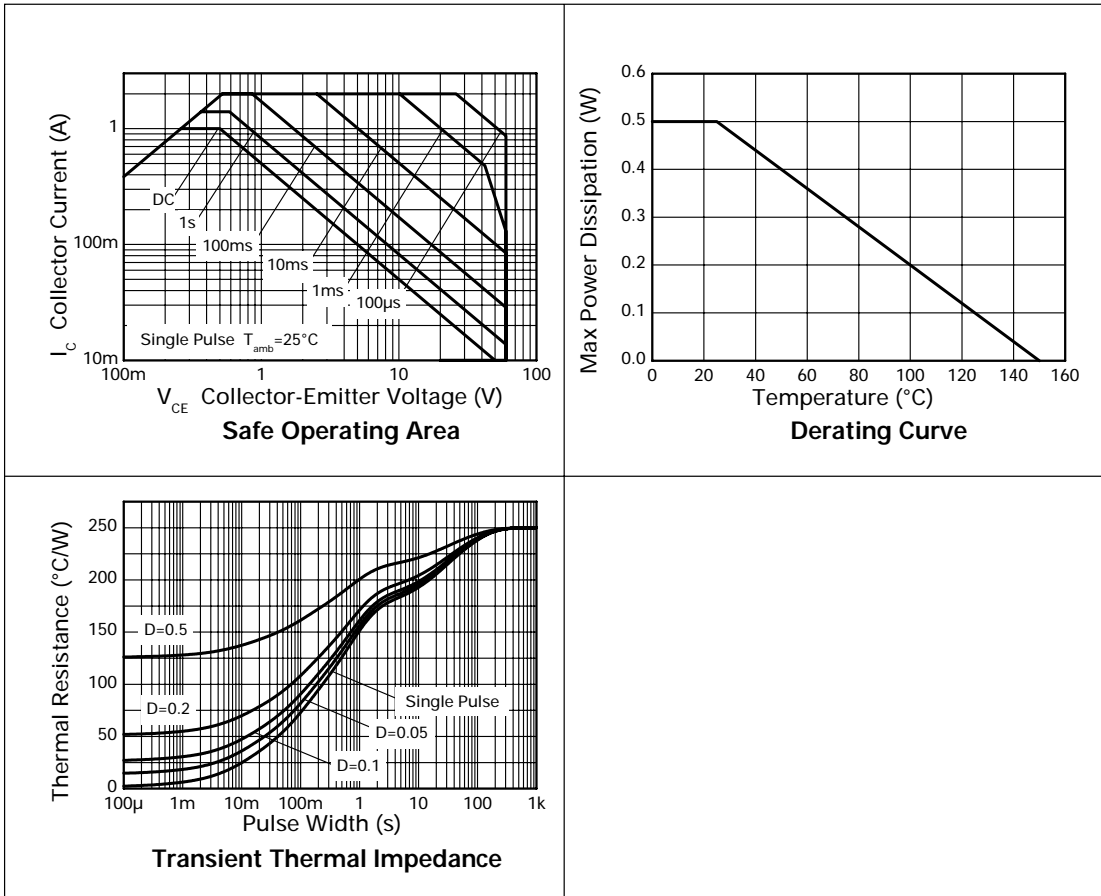
## THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	250	$^{\circ}C/W$

Mounted on a 15mm x 15mm x 0.6mm alumina substrate connected using 25mm x 0.5 dia copper wire.

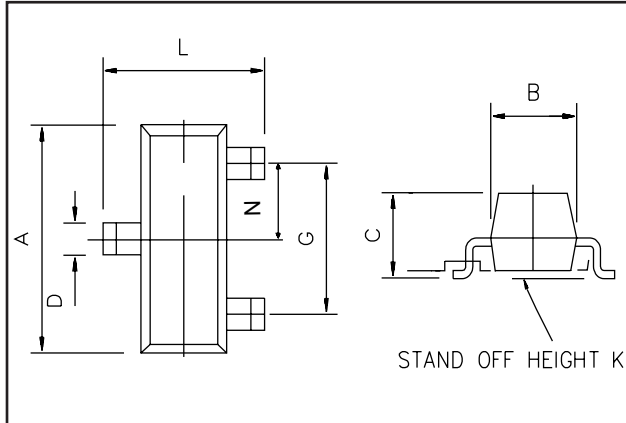
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## THERMAL CHARACTERISTICS

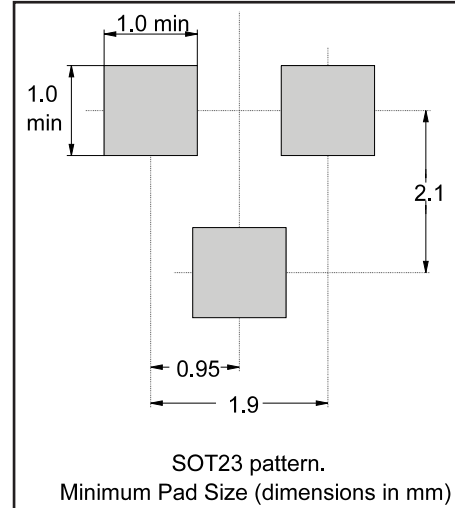


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## PACKAGE DIMENSIONS



## PAD LAYOUT DETAILS



DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	2.67	3.05	0.105	0.120
B	1.20	1.40	0.047	0.055
C	-	1.10	-	0.043
D	0.37	0.53	0.0145	0.021
F	0.085	0.15	0.0033	0.0059
G	NOM 1.9		NOM 0.075	
K	0.01	0.10	0.0004	0.004
L	2.10	2.50	0.0825	0.0985
N	NOM 0.95		NOM 0.037	

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