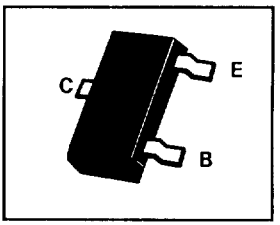
SOT23 PNP SILICON PLANAR HIGH VOLTAGE TRANSISTOR

FMMT593

ISSUE 3 - NOVEMBER 1995

COMPLEMENTARY TYPE FMMT493
PARTMARKING DETAIL - 593



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-120	V
Collector-Emitter Voltage	V_{CEO}	-100	V
Emitter-Base Voltage	V_{EBO}	-5	V
Peak Pulse Current	I_{CM}	-2	A
Continuous Collector Current	I_C	-1	A
Base Current	I_B	-200	mA
Power Dissipation at T_{amb}=25°C	P_{tot}	500	mW
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C).

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-120		V	I_C=-100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-100		V	I_C=-10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5		V	I_E=-100μA
Collector Cut-Off Current	I_{CBO}		-100	nA	V_{CB}=-100V
Emitter Cut-Off Current	I_{EBO}		-100	nA	V_{EB}=-4V
Collector-Emitter Cut-Off Current	I_{CES}		-100	nA	V_{CES}=-100V
Emitter Saturation Voltages	$V_{CE(sat)}$		-0.2 -0.3	V V	I_C=-250mA,I_B=-25mA* I_C=-500mA I_B=-50mA*
	$V_{BE(sat)}$		-1.1	V	I_C=-500mA,I_B=-50mA*
Base-Emitter Turn-on Voltage	$V_{BE(on)}$		-1.0	V	I_C=-1mA, V_{CE}=-5V*
Static Forward Current Transfer Ratio	h_{FE}	100 100 100 50	 300		I_C=-1mA, V_{CE}=-5V I_C=-250mA,V_{CE}=-5V* I_C=-500mA, V_{CE}=-5V* I_C=-1A, V_{CE}=-5V,
Transition Frequency	f_T	50		MHz	I_C=-50mA, V_{CE}=-10V f=100MHz
Output Capacitance	C_{obo}		5	pF	V_{CB}=-10V, f=1MHz

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%

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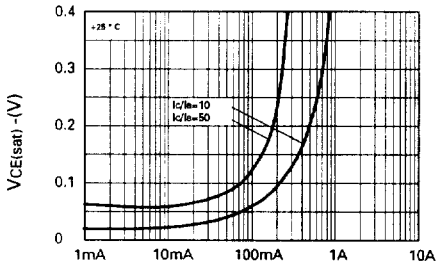
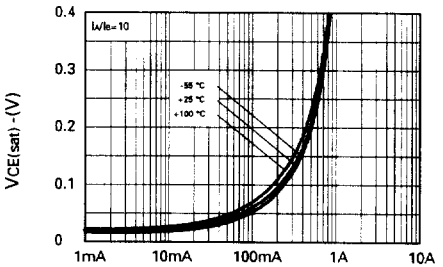
TYPICAL CHARACTERISTICS



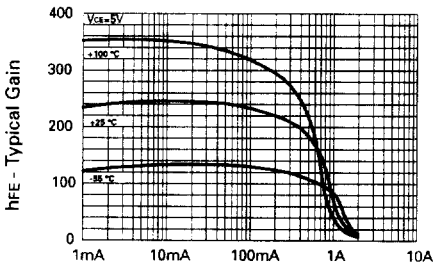
Ic-Collector Current

VCE(sat) v IC



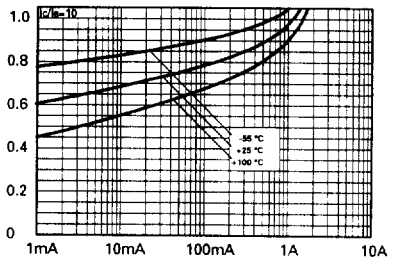
Ic-Collector Current

VCE(sat) v IC



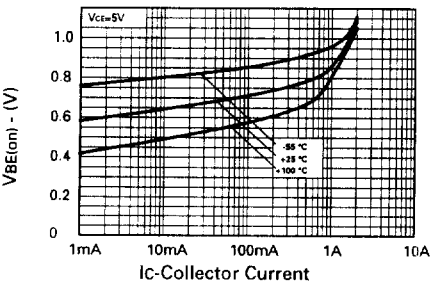
Ic-Collector Current

hFE V IC



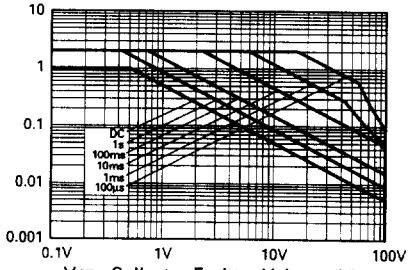
Ic-Collector Current

VBE(sat) v IC



Ic-Collector Current

VBE(on) v IC

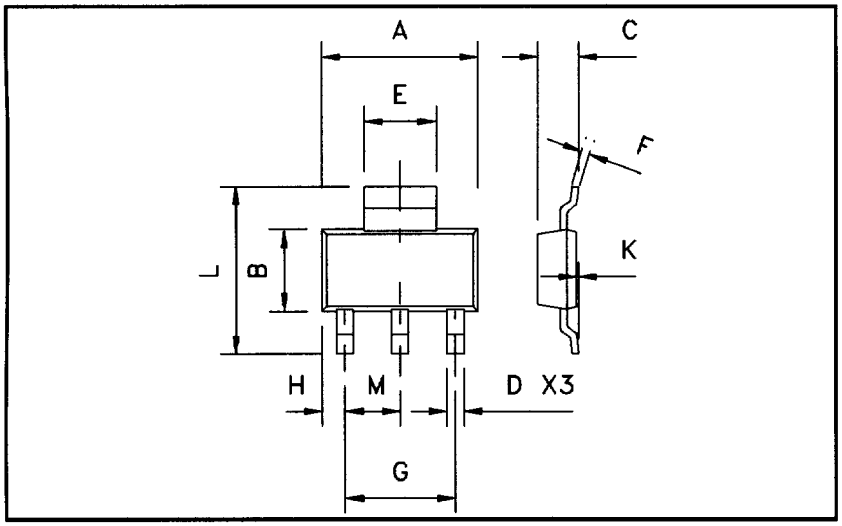


VCE - Collector Emitter Voltage (V)

Safe Operating Area

PACKAGE OUTLINE DETAILS

SOT223



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	6.3	6.7	0.248	0.264
B	3.3	3.7	0.130	0.146
C	-	1.7	-	0.067
D	0.6	0.8	0.024	0.031
E	2.9	3.1	0.114	0.122
F	0.24	0.32	0.009	0.013
G	NOM 4.6		NOM 0.181	
H	0.85	1.05	0.033	0.041
K	0.02	0.10	0.0008	0.004
L	6.7	7.3	0.264	0.287
M	NOM 2.3		NOM 0.0905	

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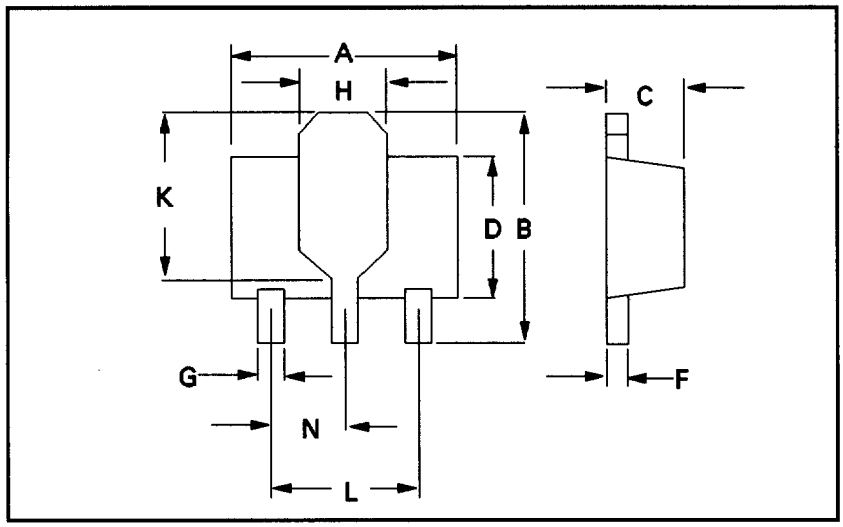
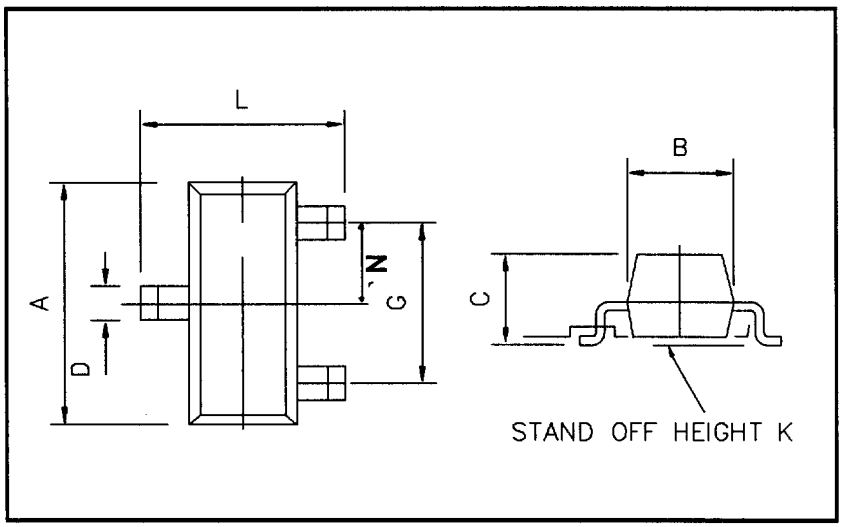


DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	4.40	4.60	0.173	0.181
B	3.75	4.25	0.150	0.167
C	1.40	1.60	0.550	0.630
D	-	2.60	-	0.102
F	0.28	0.45	0.011	0.018
G	0.38	0.55	0.015	0.022
H	1.50	1.80	0.060	0.072
K	2.60	2.85	0.102	0.112
L	2.90	3.10	0.114	0.122
N	1.40	1.60	0.055	0.063

SOT23

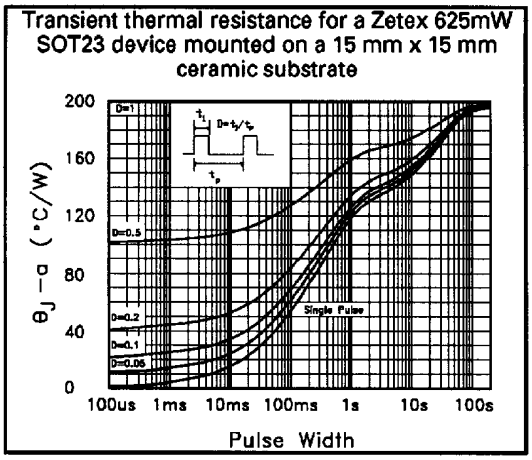


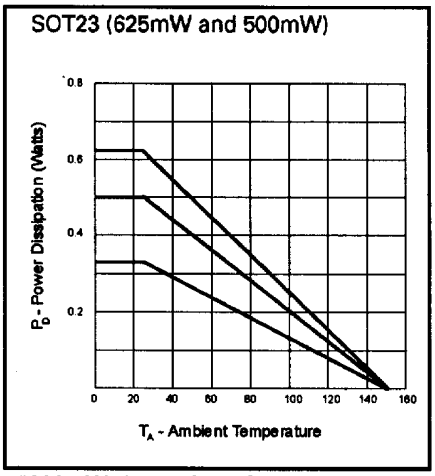
DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	2.67	3.05	0.105	0.120
B	1.20	1.40	0.047	0.055
C	-	1.10	-	0.043
D	0.37	0.53	0.0145	0.021
F	0.085	0.15	0.0033	0.0059
G	NOM 1.9		NOM 0.075	
K	0.01	0.10	0.0004	0.004
L	2.10	2.50	0.0825	0.0985
N	NOM 0.95		NOM 0.37	

THERMAL RESISTANCE AND DERATING INFORMATION

D) SOT23 625 mW devices

θj-c=100°C/W Typical
θj-a=190°C/W Typical
=200°C/W Maximum
Mounted on a 15 x 15 x 0.6 mm alumina substrate connected using 25mm x 0.5mm dia copper wire





*330mW shown for reference only

E) SOT23 500 mW devices

θj-c=110°C/W Typical
θj-a=200°C/W Typical
=250°C/W Maximum
Mounted on a 15 x 15 x 0.6 mm alumina substrate connected using 25mm x 0.5mm dia copper wire