

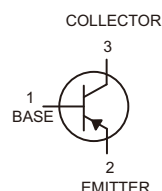
MMBT5240
PNP TRANSISTOR

FEATURES

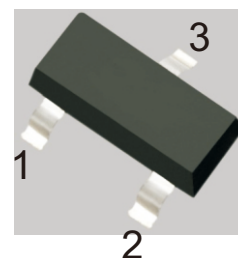
- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation
- We declare that the material of product compliance with RoHS requirements

APPLICATIONS

- Supply line switching circuits
- Battery management applications
- DC/DC converter applications
- Strobe flash units
- Heavy duty battery powered equipment (motor and lamp drivers)



SOT-23



1.BASE
2.EMITTER
3.COLLECTOR

MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector–Base Voltage	V_{CBO}	-40	V
Collector–Emitter Voltage	V_{CEO}	-40	V
Emitter–Base Voltage	V_{EBO}	-5.0	V
Collector Current — Continuous	I_C	-2	A
Collector Power Dissipation	P_C	300	mW
Junction temperature	T_J	150	°C
Storage Temperature	T_{stg}	-65~+150	°C

THERMAL CHARACTERISTICS

Symbol	Parameter	Conditions	Value	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air;note 1	417	K/W
		in free air;note 2	260	K/W

Notes:

- 1.Device mounted on a printed-circuit board,single sided copper,tinplated and standard footprint.
- 2.Device mounted on a printed-circuit board,single sided copper,tinplated and mounted pad for collector 1 cm.



ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted)

Parameter	Symbol	Test conditions	Min	Max	Typ	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu A, I_E = 0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1mA, I_B = 0$	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu A, I_C = 0$	-5.0			V
Collector cut-off current	I_{CBO}	$V_{CB} = -30V, I_E = 0$		-100		nA
Emitter cut-off current	I_{EBO}	$V_{EB} = -4V, I_C = 0$		-100		nA
DC current gain	h_{FE}	$V_{CE} = -2V, I_C = -100mA$	350			
		$V_{CE} = -2V, I_C = -500mA$	300			
		$V_{CE} = -2V, I_C = -1A$	300			
		$V_{CE} = -2V, I_C = -2A$	150			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -100mA, I_B = -1mA$		-70		mV
		$I_C = -500mA, I_B = -50mA$		-100		mV
		$I_C = -750mA, I_B = -15mA$		-180		mV
		$I_C = -1A, I_B = -50mA, \text{note 1}$		-180		mV
		$I_C = -2A, I_B = -200mA, \text{note 1}$		-320		mV
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -2A, I_B = -200mA, \text{note 1}$		-1.1		V
base-emitter turn on voltage	$V_{BE(on)}$	$I_C = -100mA, V_{CE} = -2V$		-0.75		V
collector capacitance	C_C	$I_E = I_C = 0, V_{CB} = -10V, f = 1MHz$		20		pF
Transition frequency	f_T	$V_{CE} = -10V, I_C = -100mA, f = 100MHz$	100			MHz

Note1: Pulse test: $t_p \leq 300\mu s$, $\delta \leq 0.02$



TYPICAL CHARACTERISTICS

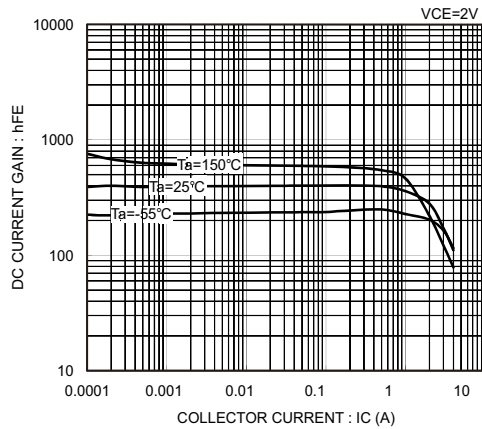


Fig.1 DC CURRENT GAIN VS.COLLECTOR CURRENT

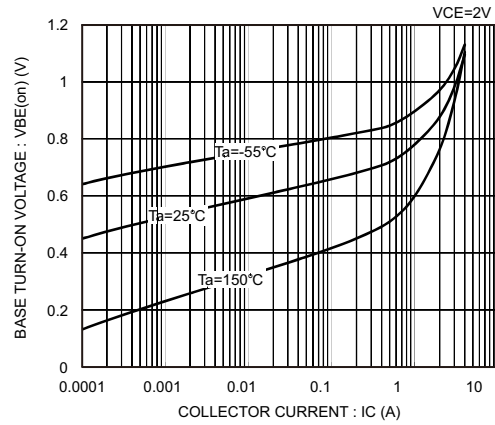


Fig.2 BASE-EMITTER TURN-ON VOLTAGE VS.COLLECTOR CURRENT

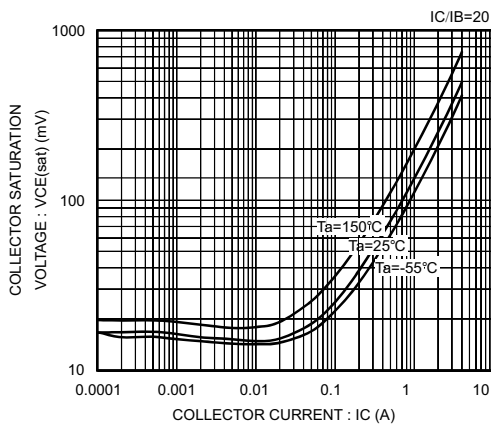


Fig.3 COLLECTOR-EMITTER SATURATION VOLTAGE VS.COLLECTOR CURRENT

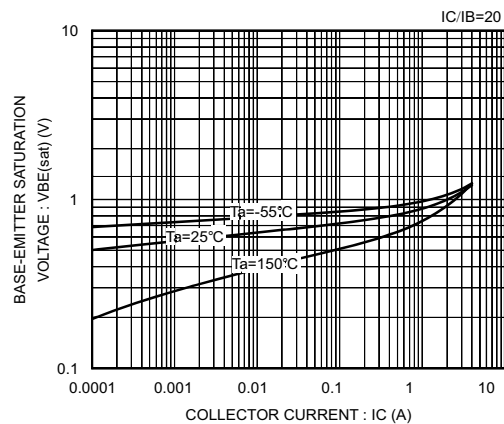


Fig.4 BASE-EMITTER SATURATION VOLTAGE VS.COLLECTOR CURRENT

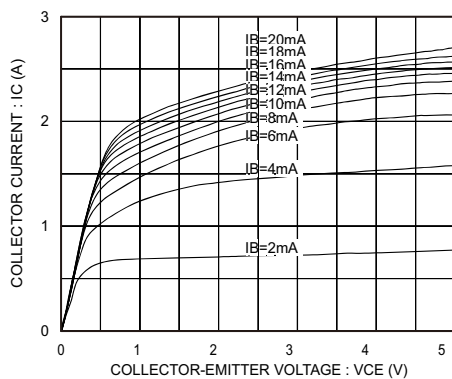


Fig.5 COLLECTOR CURRENT VS.COLLECTOR-EMITTER SATURATION VOLTAGE

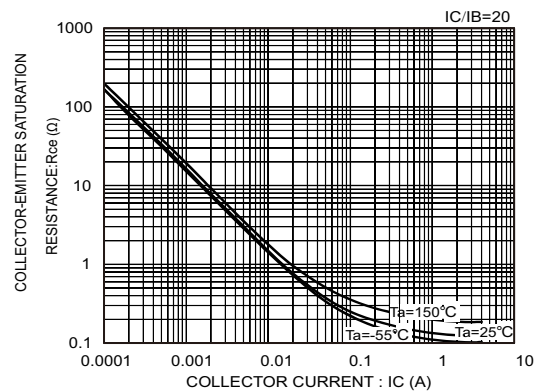
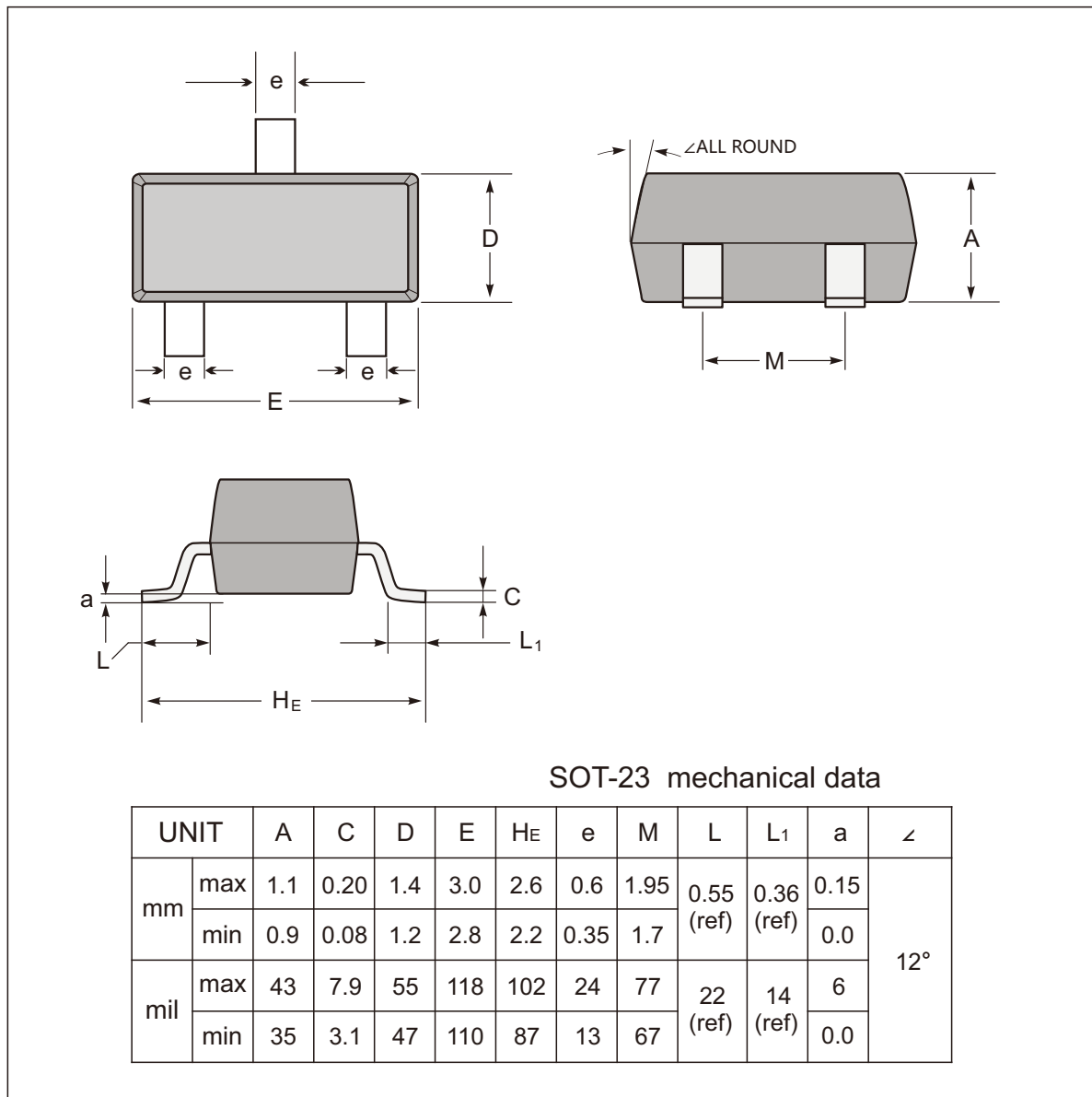


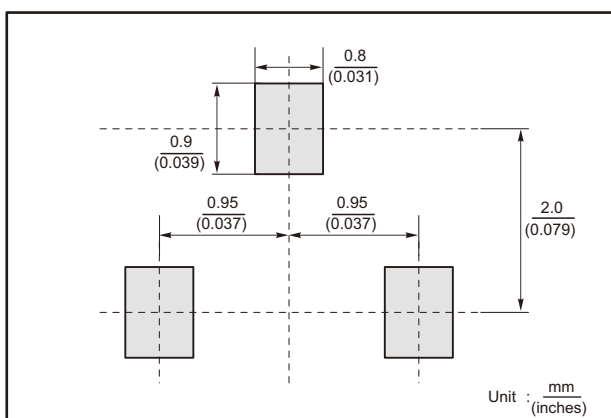
Fig.6 COLLECTOR-EMITTER SATURATION RESISTANCE VS.COLLECTOR CURRENT



SOT-23 Package Outline Dimensions



The recommended mounting pad size



Marking

Type number	Marking code
MMBT5240	ZF



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