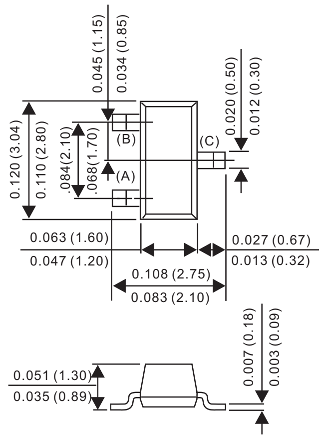
BRIGHT SEMICONDUCTOR

HMBT5240

General Purpose Transistors
PNP Silicon

Package outline

SOT-23



Dimensions in inches and (millimeters)

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)

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.008 gram

Maximum ratings (AT T_A=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	-2.0	A

Thermal characteristics (AT T_A=25°C unless otherwise noted)

PARAMETER		Symbol	MIN.	TYP.	MAX.	UNIT
Total device dissipation	T_A = 25°C	P_D			300	mW
Thermal resistance	Junction to ambient ,note 1	$R_{\theta JA}$			417	°C/W
Thermal resistance	Junction to ambient ,note 2	$R_{\theta JA}$			260	°C/W
Operation junction temperature range		T_J	-55		+150	°C
Storage temperature range		T_{STG}	-55		+150	°C

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^2

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Electrical characteristics (AT T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Collector-base cut-off current	V_{CB} = -30V, I_E = 0	I_{CBO}			-100	nA
Emitter-base cut-off current	V_{BE} = -4V, I_C = 0	I_{EBO}			-100	nA
DC current gain	I_C = -100mA, V_{CE} = -2.0V	h_{FE}	300			-
	I_C = -500mA, V_{CE} = -2.0V		260			
	I_C = -1A, V_{CE} = -2.0V		210			
	I_C = -2A, V_{CE} = -2.0V		100			
Collector-emitter saturation voltage	I_C = -100mA, I_B = -1mA	$V_{CE(sat)}$			-100	mV
	I_C = -500mA, I_B = -50mA				-110	
	I_C = -750mA, I_B = -15mA				-225	
	I_C = -1A, I_B = -50mA				-225	
	I_C = -2A, I_B = -200mA				-350	
Base-emitter saturation voltage	I_C = -2A, I_B = -200mA	$V_{BE(sat)}$			-1.1	V
Base-emitter turn-on voltage	V_{CE} = -2V, I_C = -100mA	$V_{BE(on)}$			-0.75	V
Transition frequency	I_C = -100mA, V_{CE} = -10V, f = 100MHz	f_T	100			MHz
Collector capacitance	V_{CB} = -10V, I_E = I_e=0, f = 1.0MHz	C_C			28	pF

Rating and characteristic curves(HMBT5240)

Fig.1 DC CURRENT GAIN VS.COLLECTOR CURRENT

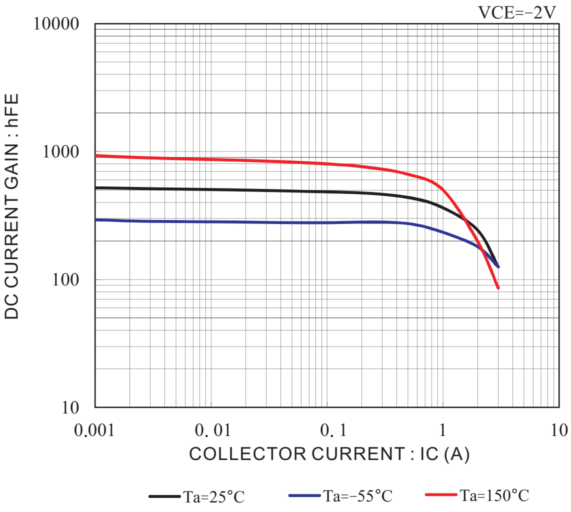


Fig.2 BASE-EMITTER TURN-ON VOLTAGE VS.COLLECTOR CURRENT

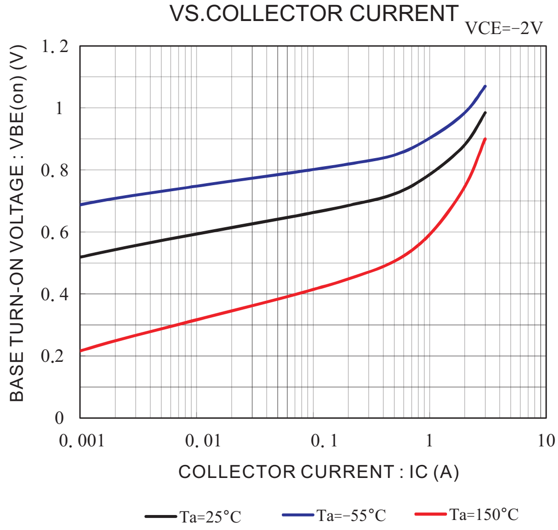


Fig.3 COLLECTOR-EMITTER SATURATION VOLTAGE VS.COLLECTOR CURRENT

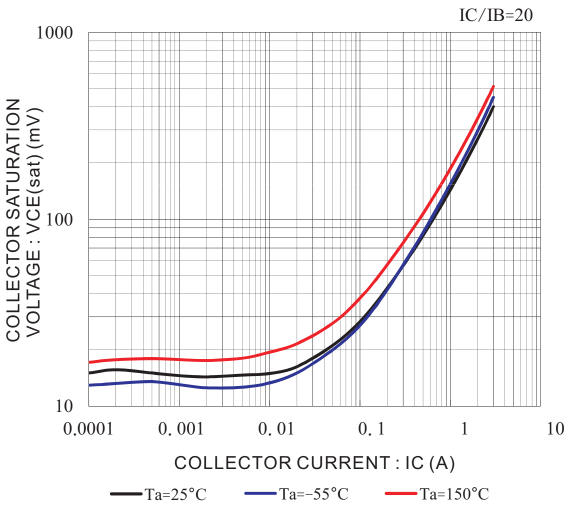


Fig.4 BASE-EMITTER SATURATION VOLTAGE VS.COLLECTOR CURRENT

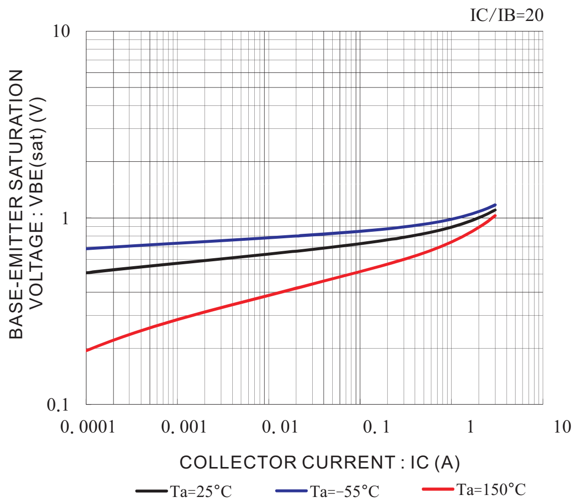


Fig.5 COLLECTOR CURRENT VS.COLLECTOR EMITTER SATURATION VOLTAGE

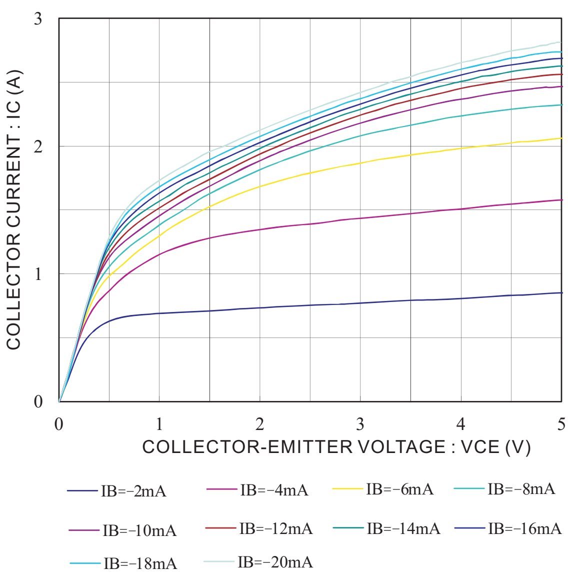
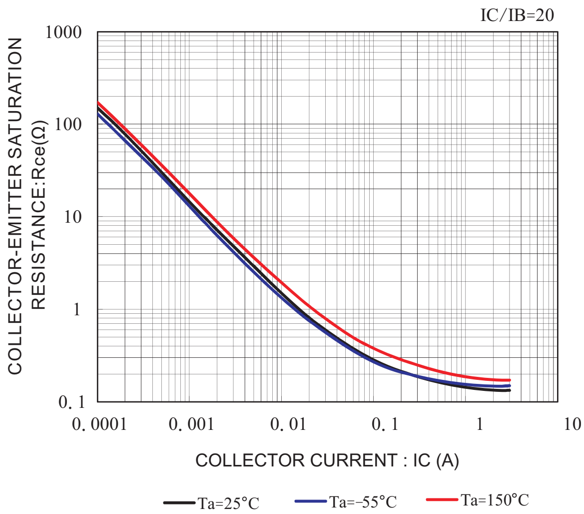


Fig.6 COLLECTOR-EMITTER SATURATION RESISTANCE VS.COLLECTOR CURRENT



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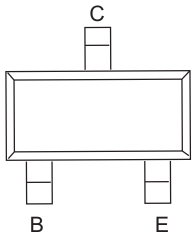
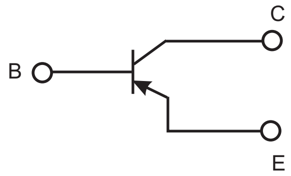
Pinning information

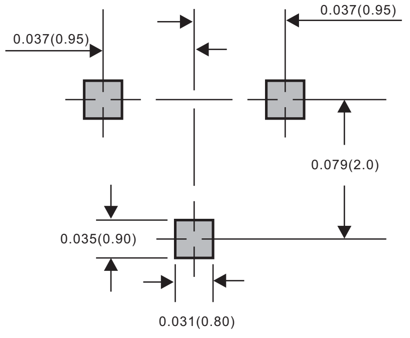
Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

Marking

Type number	Marking code
HMBT5240	ZF

Suggested solder pad layout

SOT-23



Dimensions in inches and (millimeters)