PBSS5350Z

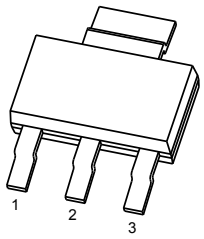
SOT-223 Plastic-Encapsulate Transistors

TRANSISTOR(PNP)

FEATURES

- High Voltage
- Low saturation voltages

SOT-223



1. BASE
2. COLLECTOR
3. EMITTER

MARKING: PB5350

Absolute Maximum Ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbols		Value	Units
Collector-Base Voltage	VCBO		-60	V
Collector-Emitter Voltage	VCEO		-50	V
Emitter -Base Voltage	VEBO		-6	V
Collector Current-Continuous	IC		-3	A
Peak Collector Current,single pulse;tp≤1ms	ICM		-5	A
Collector Power Dissipation	PC	(Note1)	0.65	W
		(Note2)	1	
		(Note3、4)	1.35	
		(Note5)	2	
Junction Temperature	Tj		150	℃
Storage Temperature	Tstg		-65-+150	℃
Thermal resistance from junction to ambient	RθJA	(Note1)	192	℃/W
		(Note2)	125	
		(Note3、4)	92	
		(Note5)	62.5	

Note:1.Device mounted on an FR4 Printed-Circuit Board (PCB), 35 μm single-sided copper, tin-plated and standard footprint.

2.Device mounted on an FR4 PCB, 35 μm single-sided copper, tin-plated, mounting pad for collector 1 cm^2 .

3.Device mounted on an FR4 PCB, 35 μm single-sided copper, tin-plated, mounting pad for collector 6 cm^2 .

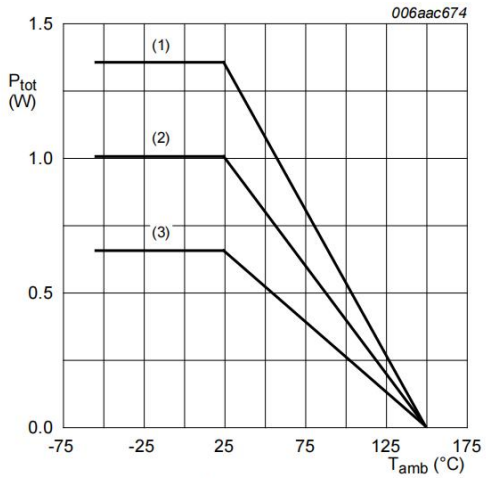
4.Device mounted on an FR4 PCB, 70 μm single-sided copper, tin-plated, mounting pad for collector 1 cm^2 .

5..Device mounted on an FR4 PCB, 70 μm single-sided copper, tin-plated, mounting pad for collector 6 cm^2 .

Electrical Characteristics(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Collector-base breakdown voltage	V(BR)CBO	IC=-100uA, IE=0	-60			V
Collector-emitter breakdown voltage	V(BR)CEO	IC=-10mA, IB=0	-50			V
Emitter-base breakdown voltage	V(BR)EBO	IE=-100uA, IC=0	-6			V
Collector cut-off current	ICBO	VCB=-50V, IE=0			-100	nA
		VCB=-50V, IE=0, Tj=150℃			-50	uA
Emitter cut-off current	IEBO	VEB=-5V, IC=0			-100	nA
DC current gain	hFE1	VCE=-2V, IC=-500mA	200			
	hFE2	VCE=-2V, IC=-1A	200			
	hFE3	VCE=-2V, IC=-2A	100			
Collector-emitter saturation voltage	VCE(sat)	IC=-500mA, IB=-50mA			-100	mV
		IC=-1A, IB=-50mA			-180	
		IC=-2A, IB=-200mA			-300	
Collector-emitter saturation resistance	RCE(sat)	IC=-2A, IB=-200mA		120	150	mΩ
Base -emitter saturation voltage	VBE(sat)	IC=-2A, IB=-200mA			-1.2	V
Base -emitter turn-on voltage	VBE(on)	VCE=-2V, IC=-1A			-1.1	V
Transition frequency	fT	VCE=-5V,IC=-100mA,f=100MHz	100			MHz
Collector capacitance	Cc	VCB=-10V, IE=0; ie=0A, f=1MHz			40	pF

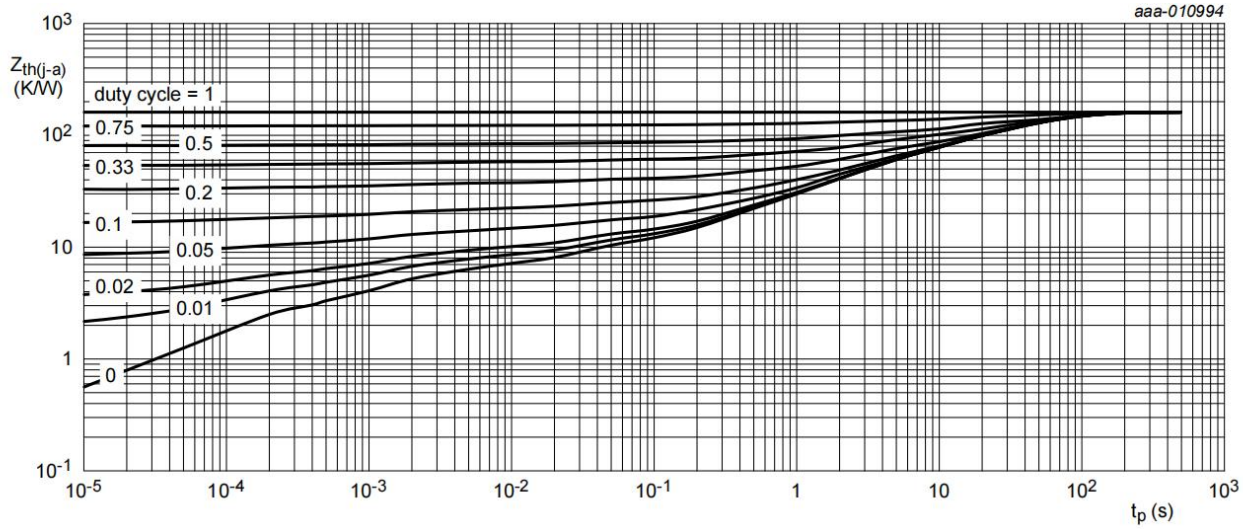
Typical characteristics



(1) FR4 PCB, mounting pad for collector 6 cm^2
(2) FR4 PCB, mounting pad for collector 1 cm^2
(3) FR4 PCB, standard footprint

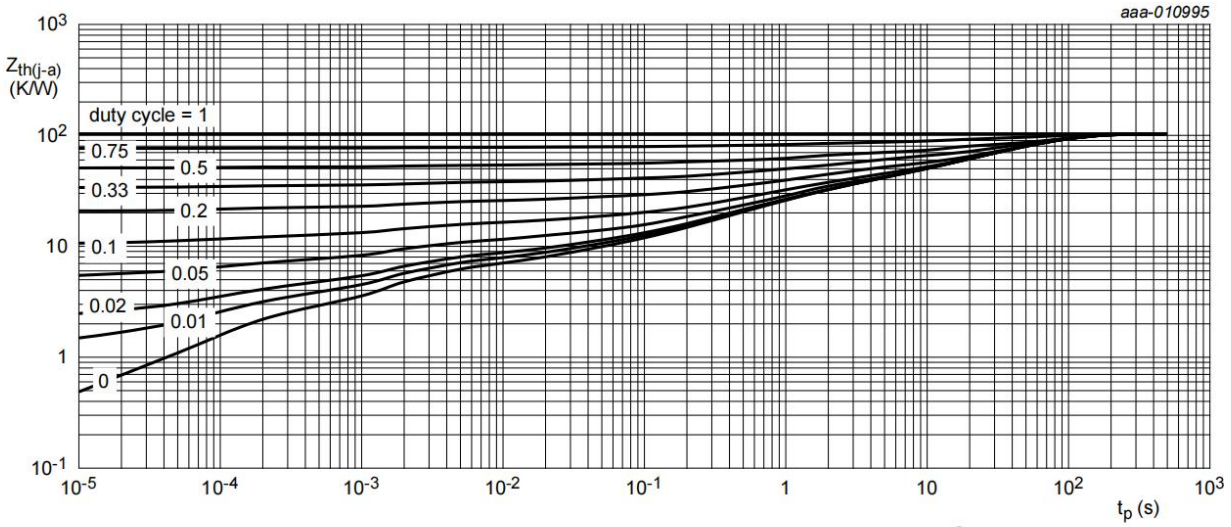
Fig. 1. Power derating curves

Typical Characteristics



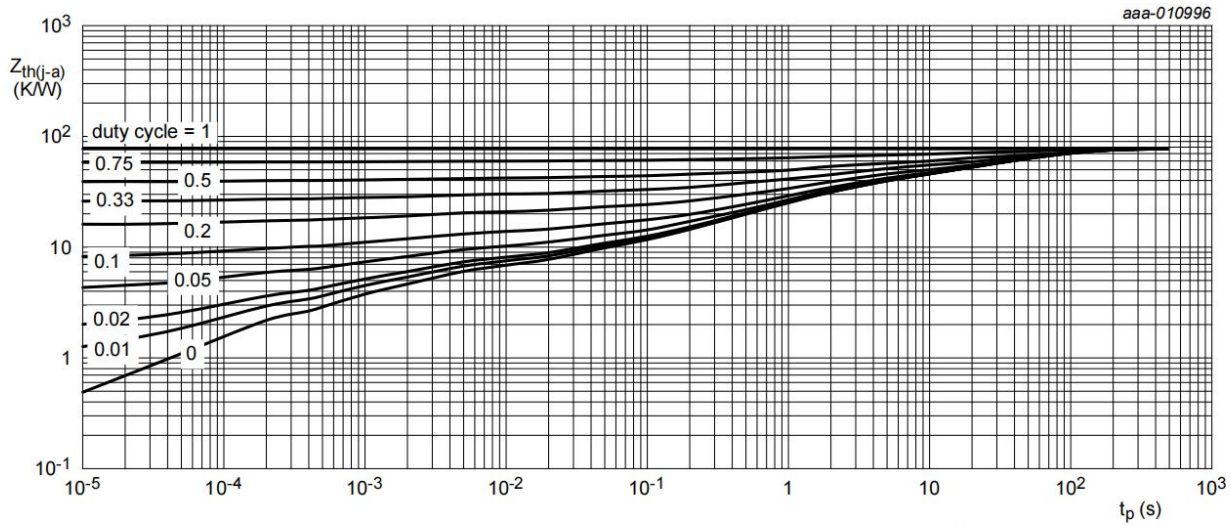
FR4 PCB, 35 µm single-sided copper, tin-plated and standard footprint.

Fig. 2. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



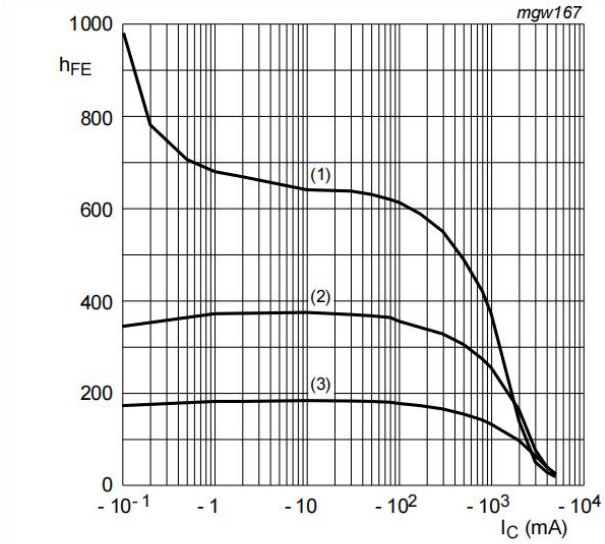
FR4 PCB, 35 µm single-sided copper, tin-plated, mounting pad for collector 1 cm^2.

Fig. 3. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



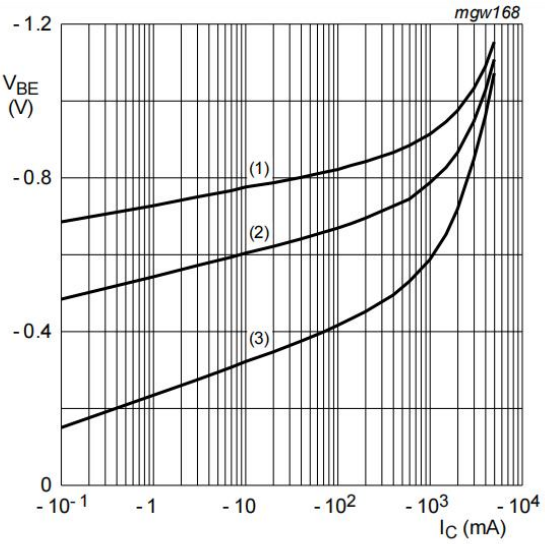
FR4 PCB, 35 µm single-sided copper, tin-plated, mounting pad for collector 6 cm^2.

Fig. 4. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



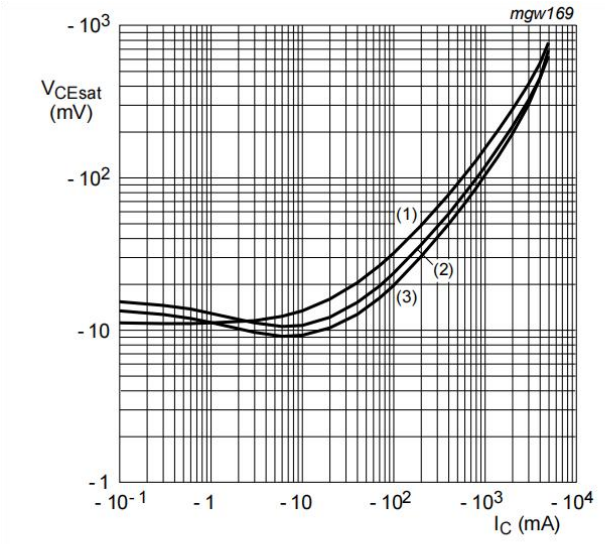
V_{CE} = -2 V
(1) T_{amb} = 150 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = -55 °C

Fig. 5. DC current gain as a function of collector current; typical values



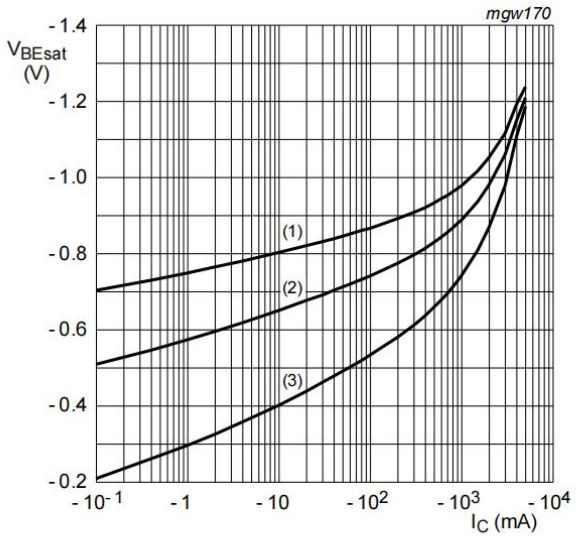
V_{CE} = -2 V
(1) T_{amb} = -55 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = 150 °C

Fig. 6. Base-emitter voltage as a function of collector current; typical values



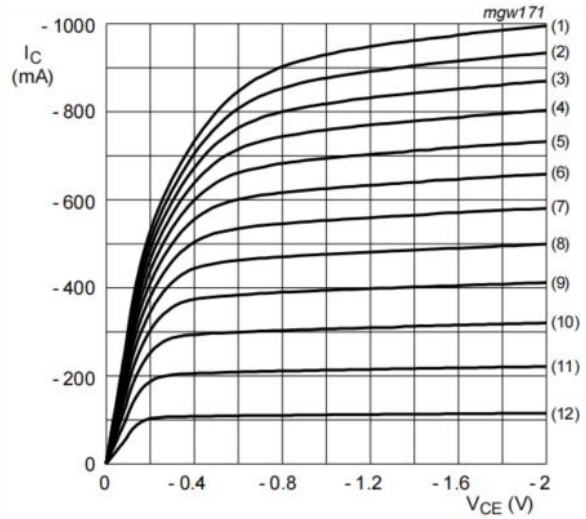
I_C/I_B = 10
(1) T_{amb} = 150 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = -55 °C

Fig. 7. Collector-emitter saturation voltage as a function of collector current; typical values



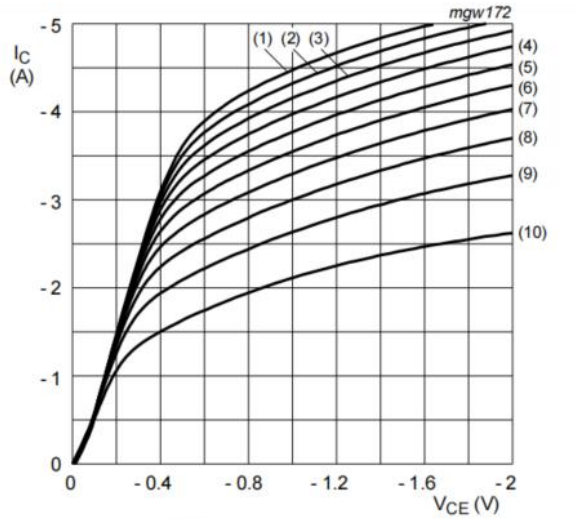
I_C/I_B = 10
(1) T_{amb} = -55 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = 150 °C

Fig. 8. Base-emitter saturation voltage as a function of collector current; typical values



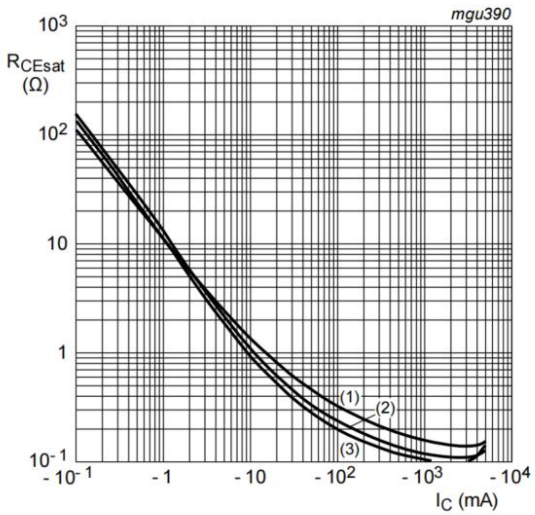
T_{amb} = 25 °C
(1) I_B = −3.96 mA
(2) I_B = −3.63 mA
(3) I_B = −3.30 mA
(4) I_B = −2.97 mA
(5) I_B = −2.64 mA
(6) I_B = −2.31 mA
(7) I_B = −1.98 mA
(8) I_B = −1.65 mA
(9) I_B = −1.32 mA
(10) I_B = −0.99 mA
(11) I_B = −0.66 mA
(12) I_B = −0.33 mA

Fig. 9. Collector current as a function of collector-emitter voltage; typical values



T_{amb} = 25 °C
(1) I_B = −250 mA
(2) I_B = −225 mA
(3) I_B = −200 mA
(4) I_B = −175 mA
(5) I_B = −150 mA
(6) I_B = −125 mA
(7) I_B = −100 mA
(8) I_B = −75 mA
(9) I_B = −50 mA
(10) I_B = −25 mA

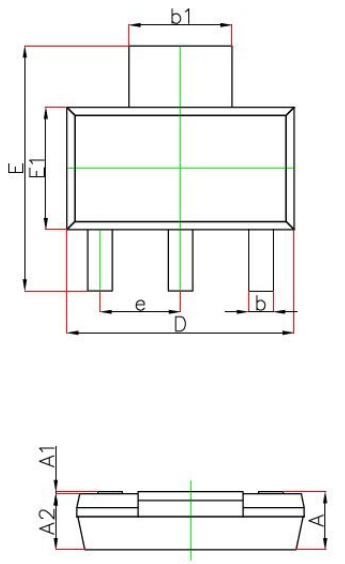
Fig. 10. Collector current as a function of collector-emitter voltage; typical values



I_C/I_B = 20
(1) T_{amb} = 150 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = -55 °C

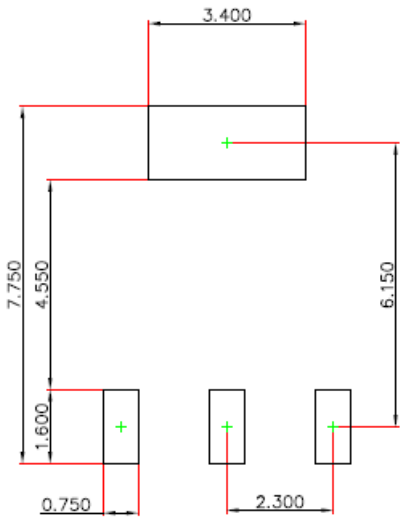
Fig. 11. Collector-emitter saturation resistance as a function of collector current; typical values

SOT-223 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	——	1.800	——	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300(BSC)		0.091(BSC)	
L	0.750	——	0.030	——
θ	0°	10°	0°	10°

SOT-223 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.050mm.
3.The pad layout is for reference purposes only.