



PBSS4140SW

NPN Low $V_{CE(SAT)}$ Transistor

Voltage 40V **Current** 1A

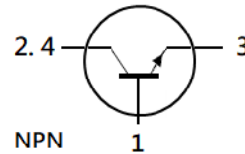
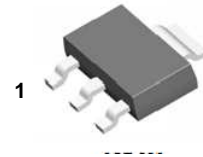
Features

- Silicon NPN epitaxial type
- Low $V_{CE(SAT)}$ 0.25V(max)@ $I_C/I_B= 1A / 100mA$
- High collector current capability
- Excellent DC current gain characteristics
- PNP complement : PBSS5140SH
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC61249 Standard

Mechanical Data

- Case : SOT-223 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0043 ounces, 0.123 grams

SOT-223



Pin Assignment:

1. Base
- 2.4. Collector
3. Emitter

Maximum Ratings and Thermal Characteristics ($T_A=25^{\circ}C$ unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNITS
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	1	A
Collector Current (Pulse)	I_{CP}	2	A
Base Current (DC)	I_B	0.2	A
Power Dissipation	P_D	2.6	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^{\circ}C$
Typical Thermal Resistance From Junction to Ambient ^(Note)	$R_{\theta JA}$	48	$^{\circ}C/W$

Note: Mounted on FR4 PCB at 1 inch square copper pad.



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Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
OFF Characteristics						
Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C = 10mA, I _B = 0A	40	-	-	V
Collector-Base Breakdown Voltage	BV _{CBO}	I _C = 0.1mA, I _E = 0A	40	-	-	V
Emitter-Base Breakdown Voltage	BV _{EBO}	I _E = 0.1mA, I _C = 0A	5	-	-	V
Collector Cutoff Current	I _{CBO}	V _{CB} = 40V, I _E = 0A	-	-	100	nA
Emitter Cutoff Current	I _{EBO}	V _{EB} = 5V, I _C = 0A	-	-	100	nA
ON characteristics						
DC Current Gain ^(Note 1)	h _{FE}	V _{CE} = 5V, I _C = 500mA	300	-	900	-
		V _{CE} = 5V, I _C = 1A	200	-	-	
		V _{CE} = 5V, I _C = 2A	35	-	-	
Collector-Emitter Saturation Voltage (Note 1)	V _{CE(SAT)}	I _C = 500mA, I _B = 50mA	-	70	150	mV
		I _C = 1A, I _B = 100mA	-	120	250	
		I _C = 1A, I _B = 50mA	-	150	350	
Base-Emitter Saturation voltage (Note 1)	V _{BE(SAT)}	I _C = 500mA, I _B = 50mA	-	-	1.0	V
		I _C = 1A, I _B = 100mA	-	-	1.1	
Transition Frequency	f _T	V _{CE} = 10V, I _E = 50mA	150	-	-	MHz
Collector Output Capacitance	C _{OB}	V _{CB} = 10V, I _E = 0A, f=1MHz	-	-	10	pF

Note: 1. Pulse width ≤ 300us, Duty cycle ≤ 2%



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TYPICAL CHARACTERISTIC CURVES

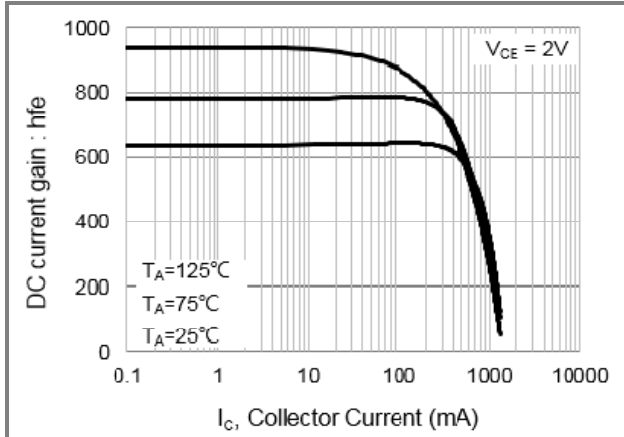


Fig.1 DC Current Gain

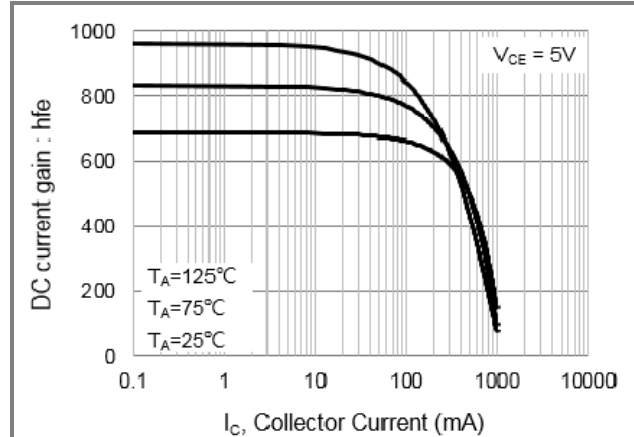


Fig.2 DC Current Gain

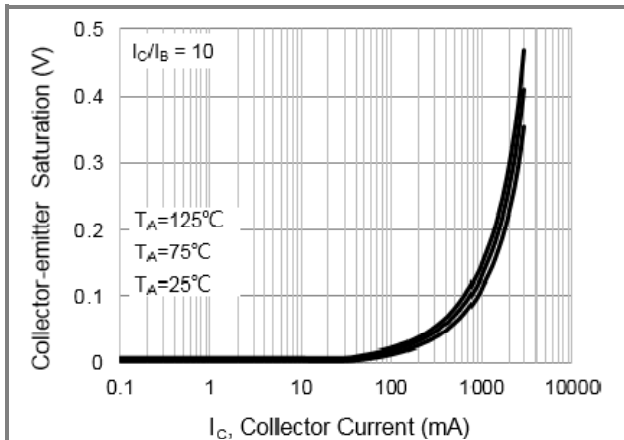


Fig.3 Collector-Emitter Saturation Voltage

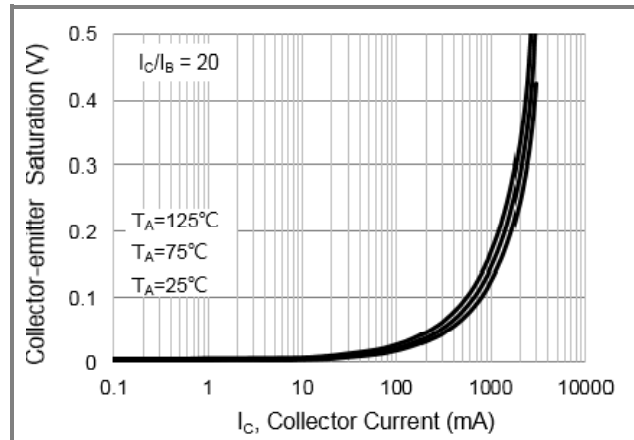


Fig.4 Collector-Emitter Saturation Voltage

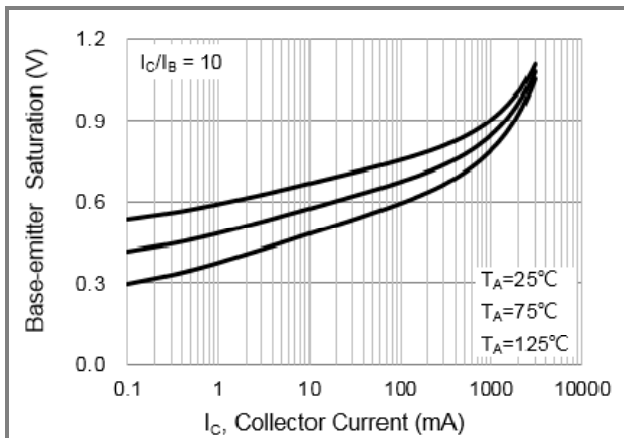


Fig.5 Base-Emitter Saturation Voltage

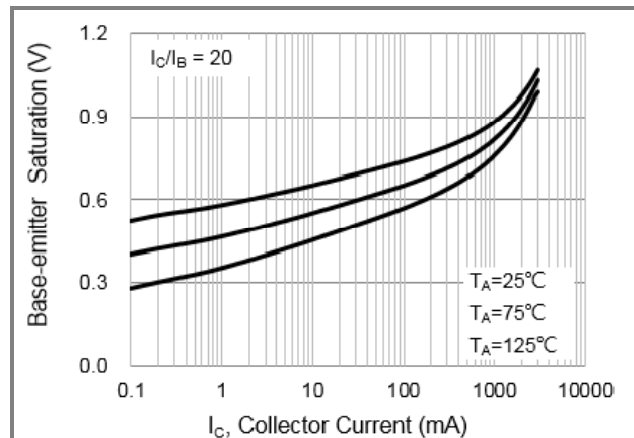


Fig.6 Base-Emitter Saturation Voltage



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TYPICAL CHARACTERISTIC CURVES

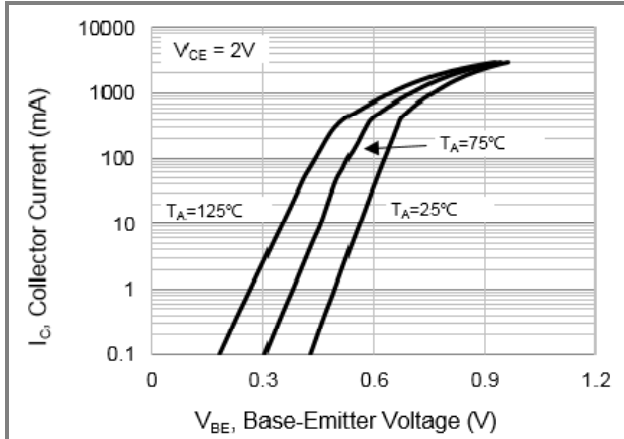


Fig.7 Base-Emitter Voltage

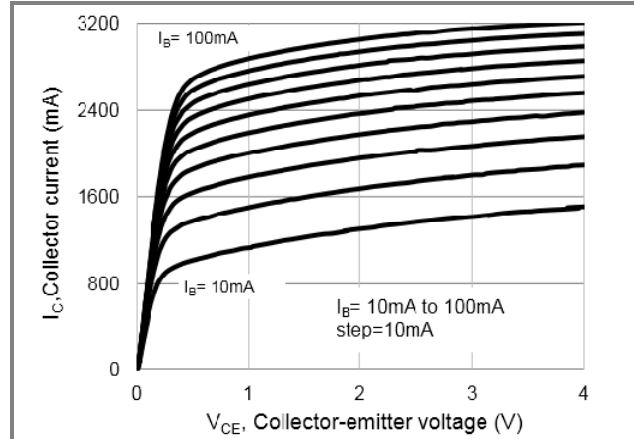


Fig.8 Collector Current

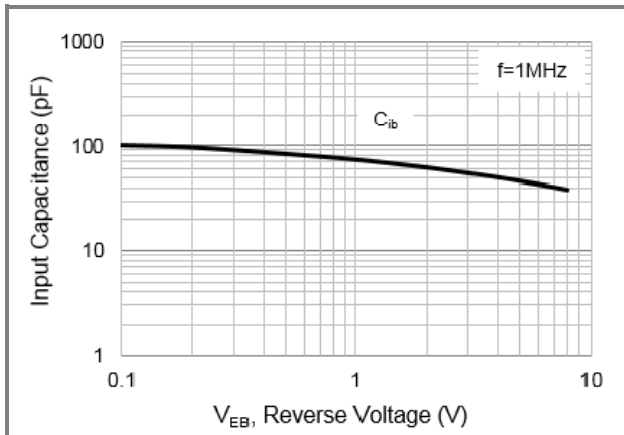


Fig.9 Input Capacitance

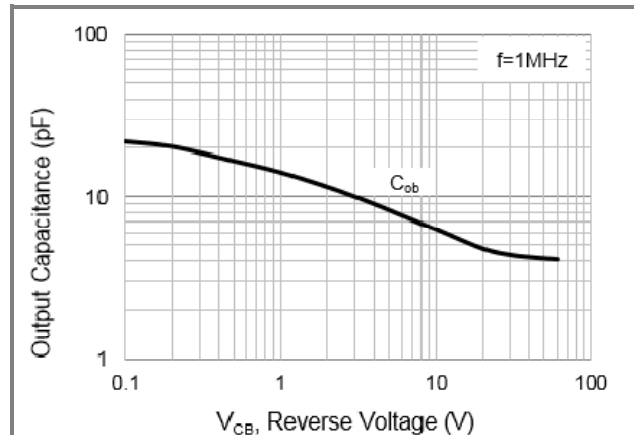


Fig.10 Output Capacitance

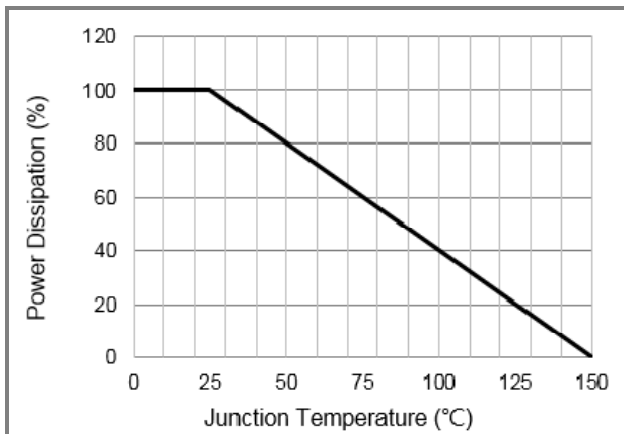


Fig.11 Power Derating Curve

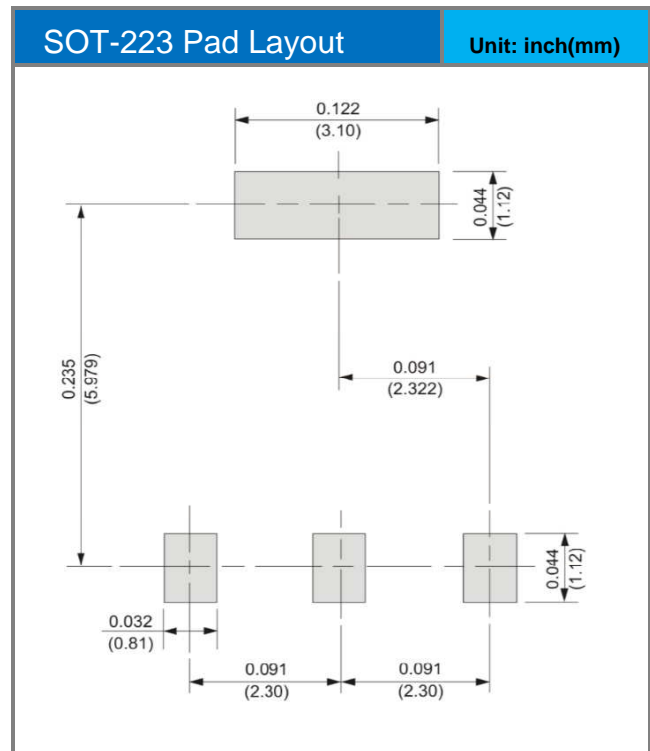
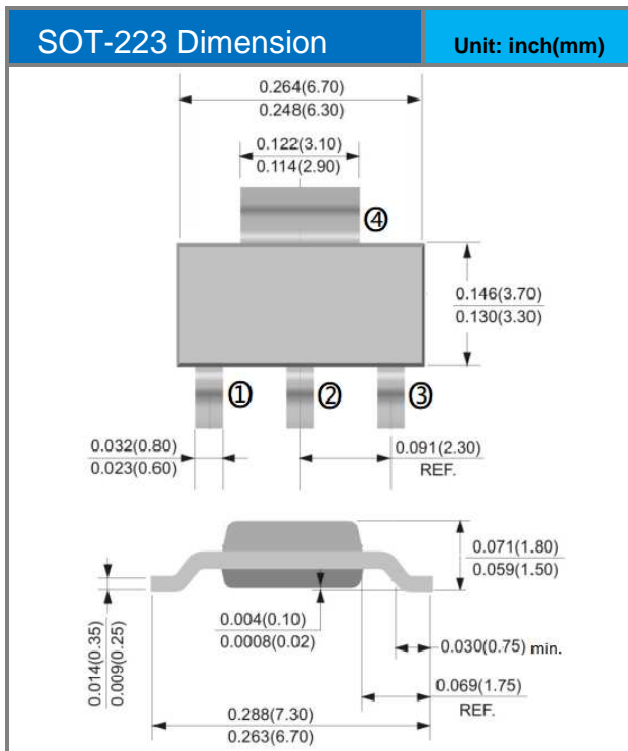


PBSS4140SW

Part No. Packing Code Version

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PBSS4140SW_R2_00001	SOT-223	2.5K pcs / 13" reel	4140SW	Halogen free

Packaging Information & Mounting Pad Layout





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