PBSS4140SH

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

Voltage	40V	Current	1A

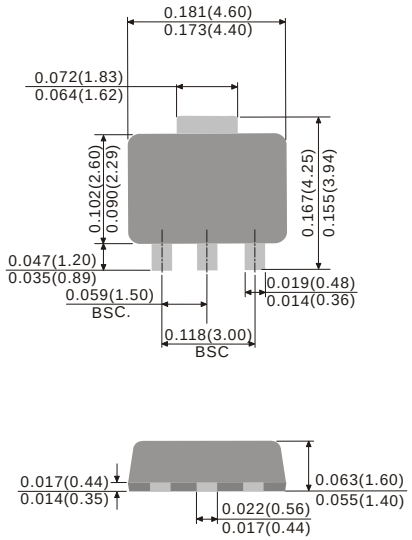
Features

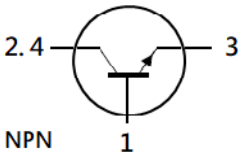
- Silicon NPN epitaxial type
- Low $V_{CE(SAT)}$ 0.25V(max)@I_C/I_B= 1A / 100mA
- High collector current capability
- Excellent DC current gain characteristics
- PNP complement : PBSS5140SH
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC61249 Standard

Mechanical Data

- Case : SOT-89 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.002 ounces, 0.057 grams

SOT-89 **Unit : inch(mm)**





Pin Assignment:
1. Base
2.4. Collector
3. Emitter

Maximum Ratings and Thermal Characteristics (T_A=25°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	1.4	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55~150	°C
Typical Thermal Resistance From Junction to Ambient(Note)	$R_{\theta JA}$	89	°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

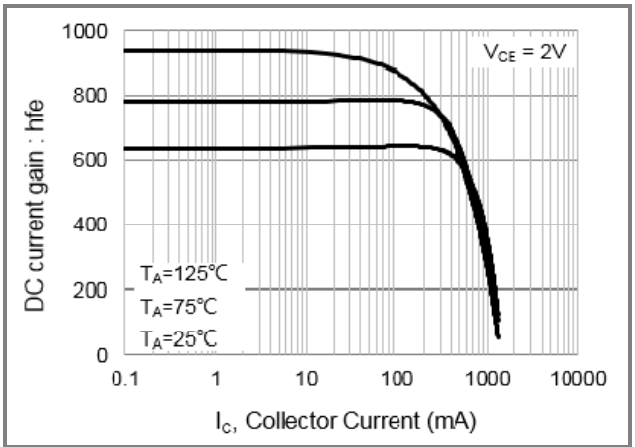

Fig.1 DC Current Gain

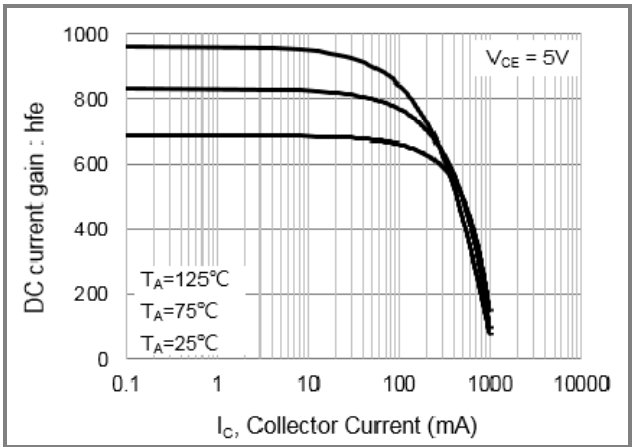

Fig.2 DC Current Gain

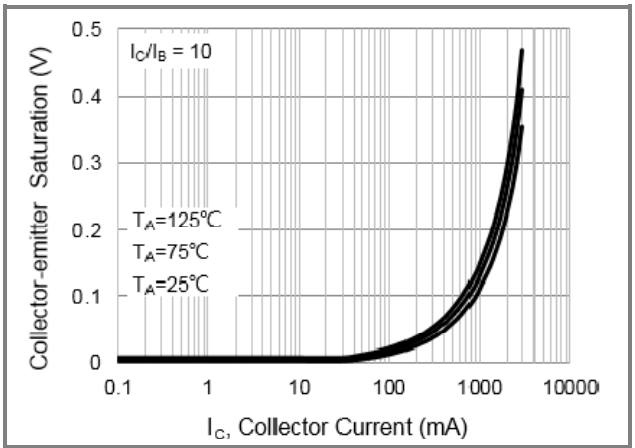

Fig.3 Collector-Emitter Saturation Voltage

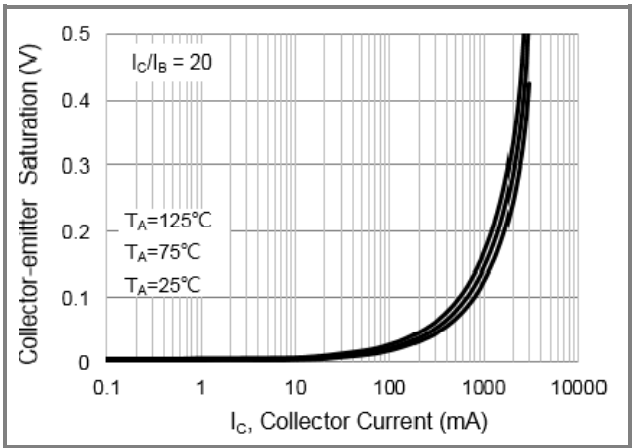

Fig.4 Collector-Emitter Saturation Voltage

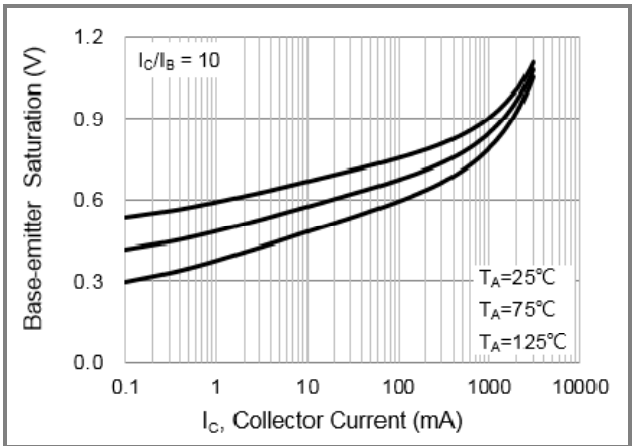

Fig.5 Base-Emitter Saturation Voltage

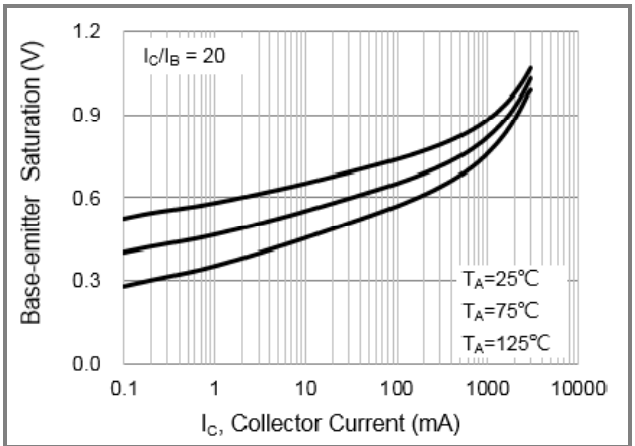

Fig.6 Base-Emitter Saturation Voltage

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TYPICAL CHARACTERISTIC CURVES

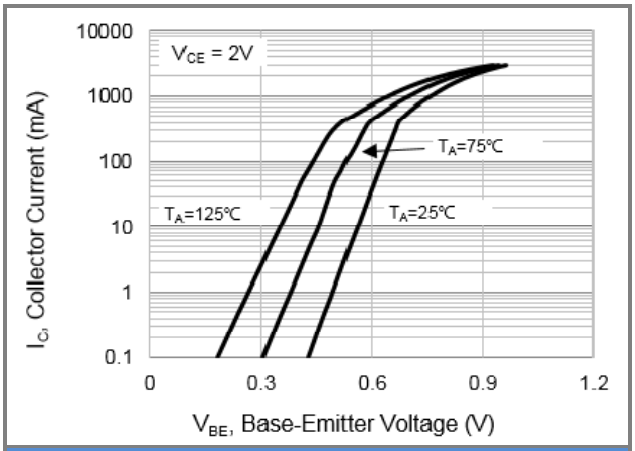


Fig.7 Base-Emitter Voltage

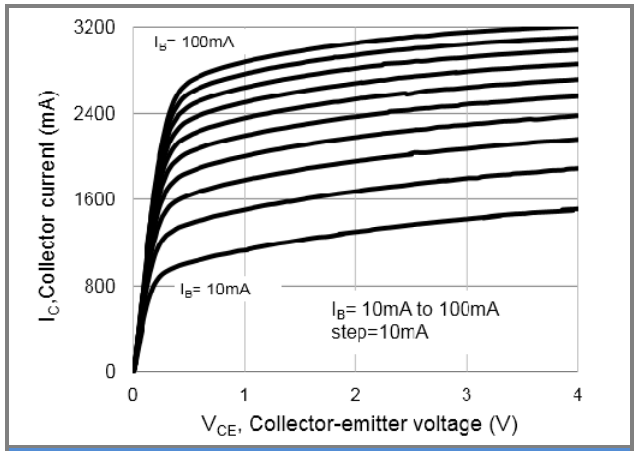


Fig.8 Collector Current

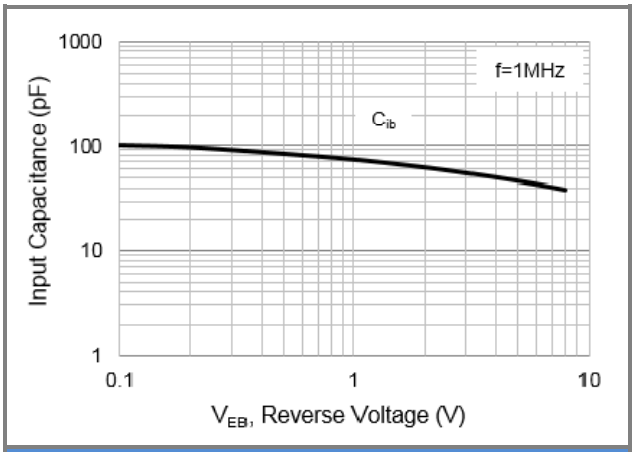


Fig.9 Input Capacitance

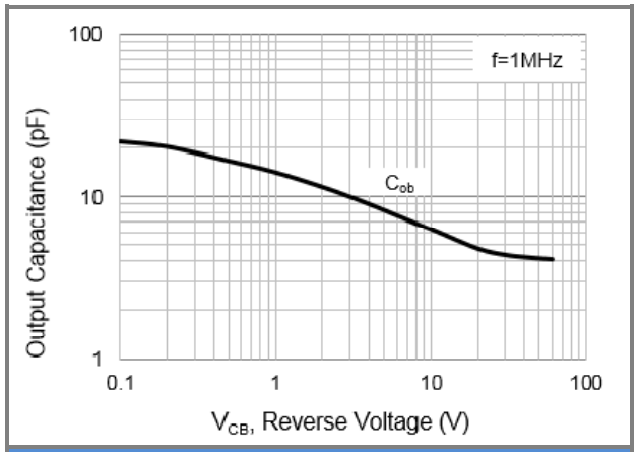


Fig.10 Output Capacitance

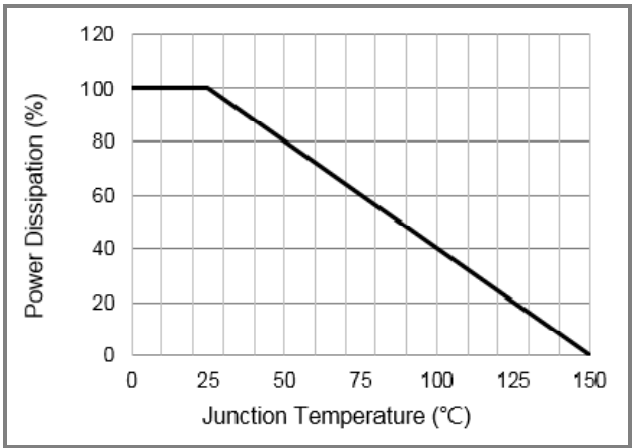


Fig.11 Power Derating Curve

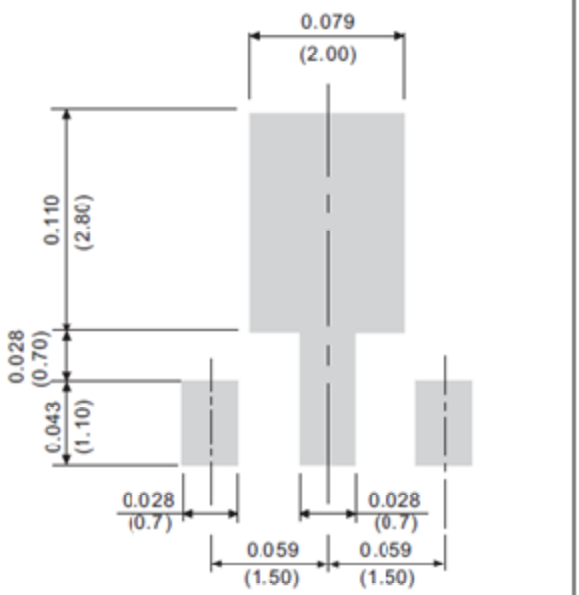
PBSS4140SH

Part No. Packing Code Version

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PBSS4140SH_R1_00001	SOT-89	1K pcs / 7” reel	414S	Halogen free

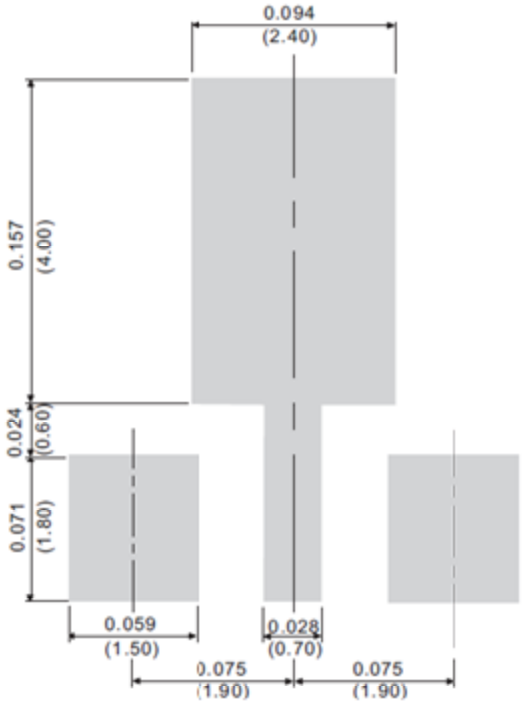
Mounting Pad Layout

SOT-89 Pad Layout unit: Inch(mm)



** Reflow soldering pad layout

SOT-89 Pad Layout unit: Inch(mm)



** Wave soldering footprint

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