NEC

PNP SILICON TRANSISTOR 2SB1117

DESCRIPTION

The 2SB1117 is a Low V_{CE(sat)} transistor which has a large

current capability and wide ASO.

It is suitable for driver of solenoid or motor, or electronic

flash.

FEATURES

• Low Collector Saturation Voltage.

 $V_{CE(sat)} = -0.2 \text{ V TYP.}$ (@ $I_C/I_B = -2.0 \text{ A}/-0.2 \text{ A}$)

Large Current.

 $I_{C(DC)} = -3.0 \text{ A}, I_{C(pulse)} = -5.0 \text{ A}$

• High DC Current Gain. :

 h_{FE} = 300 TYP. (@ V_{CE} = -2.0 V, I_{C} = -1.0 A)

• High Total Power Dissipation.

 $: P_T = 1.0 W$

• Complementary to the NEC 2SD1617 NPN Transistor.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature	o °c
Junction Temperature	num
Maximum Power Dissipation ($T_a = 25$ °C)	
Total Power Dissipation	.0 W
Maximum Voltages and Currents ($T_a = 25$ °C)	
V _{CBO} Collector to Base Voltage	30 V
V _{CEO} Collector to Emitter Voltage	25 V
V _{EBO} Emitter to Base Voltage	.0 V
I _C Collector Current (DC)	.0 A
I _C Collector Current (pulse)*	.0 A

^{*}PW \leq 10 ms, Duty Cycle \leq 50 %

PACKAGE DIMENSIONS in millimeters 7.0 MAX. 0.8 ± 0.1 0.6 ± 0.1 0.6 ± 0.1 0.6 ± 0.1 1.7 1.7 0.55 ± 0.1 1. Emitter 2. Collector 3. Base

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
hFE1**	DC Current Gain	135	300	600		V _{CE} = -2.0 V, I _C = -1.0 A
hFE2**	DC Current Gain	81				$V_{CE} = -2.0 \text{ V, } I_{C} = -2.0 \text{ A}$
fT	Gain Bandwidth Product	100	280		MHz	V _{CE} = -5.0 V, I _E = 1.0 A
С _{оь}	Output Capacitance		90		pF	$V_{CB} = -10 \text{ V}, I_{E} = 0, f = 1.0 \text{ MHz}$
^I сво	Collector Cutoff Current			-100	nΑ	$V_{CB} = -30 \text{ V, } I_{E} = 0$
¹ EBO	Emitter Cutoff Current			-100	nΑ	$V_{EB} = -6.0 \text{ V}, I_{C} = 0$
V _{BE} **	Base to Emitter Voltage	-600	-660	-700	mV	$V_{CE} = -2.0 \text{ V, } I_{C} = -0.1 \text{ A}$
VCE(sat)1**	Collector Saturation Voltage		-0:2	-0.3	V	I _C = -2.0 A, I _B = -0.2 A
VCE(sat)2**	Collector Saturation Voltage		-0.3	-0.5	V	$I_C = -3.0 \text{ A}, I_B = -0.3 \text{ A}$
VBE(sat)**	Base Saturation Voltage		-1.0	-1.2	V	$I_C = -2.0 \text{ A}, I_B = -0.2 \text{ A}$
ton	Turn On Time		80		ns	$/V_{CE} = -10 \text{ V}, I_{C} = -500 \text{ mA}$
^t stg	Storage Time		500		ns	$I_{B1} = -I_{B2} = -50 \text{mA}$
tf	Fall Time		70		ns	$V_{BE(off)} = 2 \text{ to } 3 \text{ V}$

^{**}Pulsed PW \leq 350 μ s, Duty Cycle \leq 2%

Classification of hee1

Rank L		К	U
Range	135 to 270	200 to 400	300 to 600

Test Conditions: $V_{CE} = -2.0 \text{ V}$, $I_{C} = -1.0 \text{ A}$

TYPICAL CHARACTERISTICS (Ta = 25 °C)





















