## NEC

# PNP SILICON POWER TRANSISTOR 2SA1156

#### DESCRIPTION

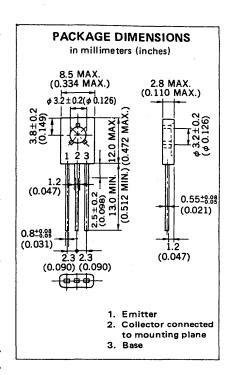
The 2SA1156 is suitable for Low Power Switching regulator, DC-DC converter and High Voltage Switch.

#### **FEATURES**

- High Breakdown Voltage.
- Low Collector Saturation Voltage.
- High Speed Switching.
- Complementary to the NEC 2SC2752 NPN Transistor.

#### **ABSOLUTE MAXIMUM RATINGS**

#### Maximum Temperatures Storage Temperature . . . . . . . . . . . -55 to +150 °C Junction Temperature . . . . . . . +150 °C Maximum **Maximum Power Dissipations** Total Power Dissipation ( $T_a = 25$ °C) . . . . . 1.0 W Total Power Dissipation ( $T_c = 25$ °C) ..... Maximum Voltages and Currents (Ta = 25 °C) Collector to Base Voltage . . . . . . -400 $V_{CBO}$ $V_{CEO}$ Collector to Emitter Voltage . . . . . -400 Emitter to Base Voltage . . . . . . . -7.0 $V_{EBO}$ IC(DC) Collector Current . . . . . . . . . -1.0 I<sub>C(pulse)</sub>\*



#### ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C)

I<sub>B(DC)</sub>

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
hFE **	DC Current Gain	30		200		$V_{CE} = -5.0 \text{ V}, I_{C} = -100 \text{ mA}$
ton	Turn On Time			1.0	μs	$I_{C} = -100 \text{ mA}, R_{L} = 1.5 \text{ k}\Omega$
. t <sub>stg</sub>	Storage Time	•		4.0	μs	$I_{B1} = -10 \text{ mA}, I_{B2} = 20 \text{ mA}, V_{CC} = -150 \text{ V}$
t <sub>f</sub>	Fall Time			1.0	μs	PW = 50 μs, Duty Cycle ≤ 2 %
VCEO(SUS)	Collector to Emitter Sustaining Voltage	-400			V	$I_C = -100 \text{ mA}, I_B = -10 \text{ mA}, L = 20 \text{ mH}$
VCEX (SUS)	Collector to Emitter Sustaining Voltage	-400			V	$I_C = -200 \text{ mA}, I_{B1} = -I_{B2} = -20 \text{ mA}$ $V_{BE(OFF)} = 5.0 \text{ V}, L = 10 \text{ mH}, Clamped.}$
ІСВО	Collector Cutoff Current			-100	μΑ	$V_{CB} = -400 \text{ V, } I_{E} = 0$
ICEX1	Collector Cutoff Current			-100	μΑ	$V_{CE} = -400 \text{ V}, V_{BE(OFF)} = 1.5 \text{ V}$
ICEX2	Collector Cutoff Current			-1.0	mA	$V_{CE} = -400 \text{ V}, V_{BE(OFF)} = 1.5 \text{ V},$ $T_a = 125 \text{ °C}$
I <sub>EBO</sub>	Emitter Cutoff Current			-10	μΑ	$V_{EB} = -5.0 \text{ V, } I_{C} = 0$
V <sub>CE(sat)</sub> **	Collector Saturation Voltage			-1.0	V	$I_C = -100 \text{ mA}, I_B = -10 \text{ mA}$
V <sub>BE(sat)</sub> **	Base Saturation Voltage			-1.2	V	$I_C = -100 \text{ mA}, I_B = -10 \text{ mA}$

#### Classification of hFE

Rank	N	М	L	к
Range	30 to 60	40 to 80	60 to 120	100 to 200

Test Conditions:  $V_{CE} = -5.0 \text{ V}$ ,  $I_{C} = -100 \text{ mA}$ 

<sup>\*</sup> PW  $\leq$  10 ms, Duty Cycle  $\leq$  50 %

<sup>\*\*</sup> Pulsed / PW  $\leq$  350  $\mu$ s, Duty Cycle  $\leq$  2 %

### TYPICAL CHARACTERISTICS (Ta = 25 °C)

