

# NPN SILICON POWER TRANSISTOR 2SC3840

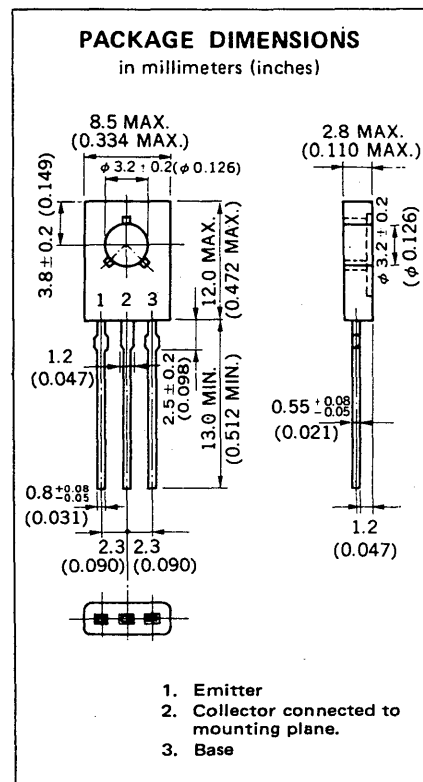
**DESCRIPTION** The 2SC3840 is designed for use in high speed and high voltage. It is suitable for switching regulators, DC-DC converters and ultrasonic appliance applications.

- FEATURES**
- High speed switching
  - High Voltage

**ABSOLUTE MAXIMUM RATINGS**

Maximum Temperatures	
Storage Temperature	-55 to +150 °C
Junction Temperature	150 °C Maximum
Maximum Power Dissipation (T <sub>c</sub> = 25 °C)	
Total Power Dissipation	15 W
Maximum Voltages and Currents (T <sub>a</sub> = 25 °C)	
V <sub>CB0</sub> Collector to Base Voltage	600 V
V <sub>CEO</sub> Collector to Emitter Voltage	600 V
V <sub>EBO</sub> Emitter to Base Voltage	7.0 V
I <sub>C(DC)</sub> Collector Current (DC)	1.0 A
I <sub>C(pulse)</sub> Collector Current (Pulse)*	2.0 A

\*PW ≤ 300 μs, Duty Cycle ≤ 10 %



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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
t <sub>on</sub>	Turn-On Time		0.1	0.5	μs	I <sub>C</sub> = 0.5 A, I <sub>B1</sub> = -I <sub>B2</sub> = 0.1 A R <sub>L</sub> = 500 Ω, V <sub>CC</sub> ≈ 250 V
t <sub>stg</sub>	Storage Time		4.0	5.0	μs	
t <sub>f</sub>	Fall Time		0.2	0.5	μs	
h <sub>FE1</sub> **	DC Current Gain	30		120	-	V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 0.1 A
h <sub>FE2</sub> **	DC Current Gain	5			-	V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 0.5 A
V <sub>CE(sat)</sub> **	Collector Saturation Voltage			1.0	V	I <sub>C</sub> = 0.4 A, I <sub>B</sub> = 0.08 A
V <sub>BE(sat)</sub> **	Base Saturation Voltage			1.2	V	I <sub>C</sub> = 0.4 A, I <sub>B</sub> = 0.08 A
I <sub>CBO</sub>	Collector Cutoff Current			10	μA	V <sub>CB</sub> = 600 V, I <sub>E</sub> = 0
I <sub>EBO</sub>	Emitter Cutoff Current			10	μA	V <sub>EB</sub> = 7.0 V, I <sub>C</sub> = 0

\*\*Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2 %

**Classification of h<sub>FE1</sub>**

Rank	M	L	K
Range	30 to 60	40 to 80	60 to 120

Test Conditions: V<sub>CE</sub> = 5.0 V, I<sub>C</sub> = 0.1 A

TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

