

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.

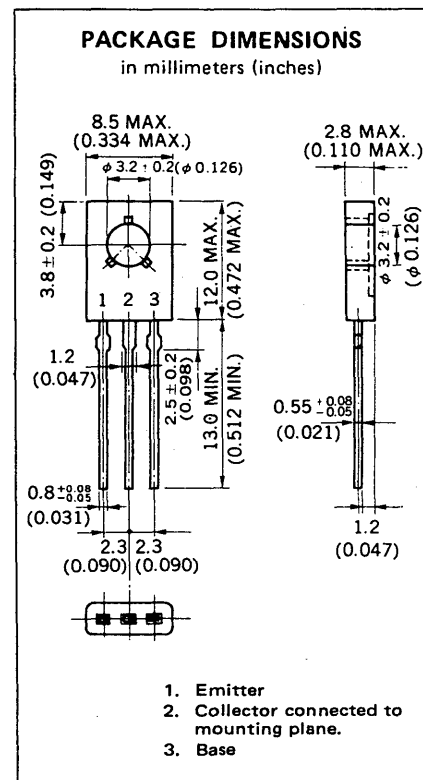
FEATURES

- High speed switching
- High Voltage

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures
 Storage Temperature -55 to +150 °C
 Junction Temperature 150 °C Maximum
 Maximum Power Dissipation ($T_c = 25^\circ\text{C}$)
 Total Power Dissipation 15 W
 Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)
 V_{CBO} Collector to Base Voltage . . . 600 V
 V_{CEO} Collector to Emitter Voltage . . 600 V
 V_{EBO} Emitter to Base Voltage 7.0 V
 $I_{C(DC)}$ Collector Current (DC) 1.0 A
 $I_{C(pulse)}$ Collector Current (Pulse)* . . . 2.0 A

*PW $\leq 300 \mu\text{s}$, Duty Cycle $\leq 10\%$



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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
t_{on}	Turn-On Time		0.1	0.5	μs	$I_C = 0.5 \text{ A}$, $I_{B1} = -I_{B2} = 0.1 \text{ A}$ $R_L = 500 \Omega$, $V_{CC} \approx 250 \text{ V}$
t_{stg}	Storage Time		4.0	5.0	μs	
t_f	Fall Time		0.2	0.5	μs	
h_{FE1}^{**}	DC Current Gain	30		120	—	$V_{CE} = 5.0 \text{ V}$, $I_C = 0.1 \text{ A}$
h_{FE2}^{**}	DC Current Gain	5			—	$V_{CE} = 5.0 \text{ V}$, $I_C = 0.5 \text{ A}$
$V_{CE(sat)}^{**}$	Collector Saturation Voltage			1.0	V	$I_C = 0.4 \text{ A}$, $I_B = 0.08 \text{ A}$
$V_{BE(sat)}^{**}$	Base Saturation Voltage			1.2	V	$I_C = 0.4 \text{ A}$, $I_B = 0.08 \text{ A}$
I_{CBO}	Collector Cutoff Current			10	μA	$V_{CB} = 600 \text{ V}$, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			10	μA	$V_{EB} = 7.0 \text{ V}$, $I_C = 0$

**Pulsed: PW $\leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$

Classification of h_{FE1}

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

Test Conditions: $V_{CE} = 5.0 \text{ V}$, $I_C = 0.1 \text{ A}$

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