

isc Silicon NPN Power Transistor

2N5840

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 350V(\text{Min})$
- Low Collector Saturation Voltage
- Wide Area of Safe Operation

APPLICATIONS

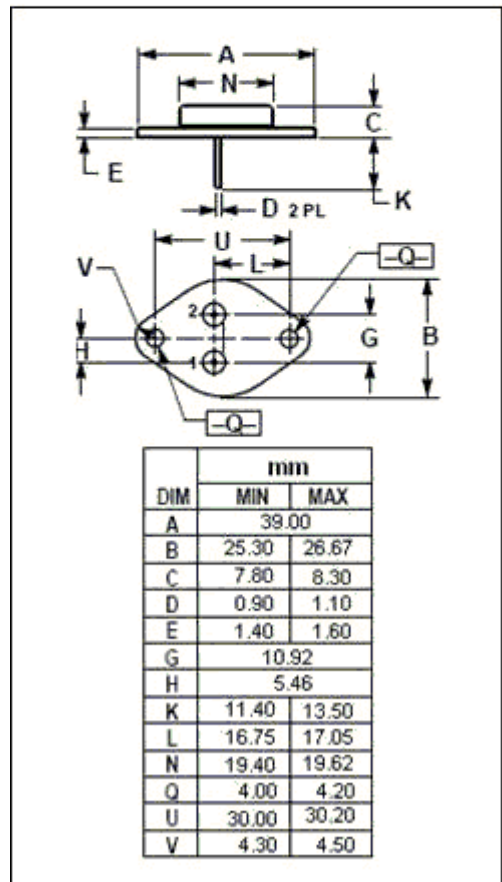
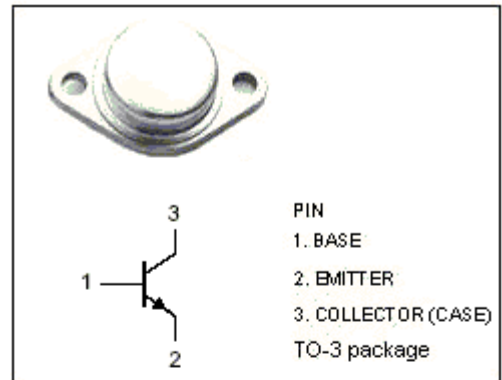
- Designed for use in inverters, deflection circuits, switching regulators, high-voltage bridged amplifiers, ignition circuits and other high-voltage switching applications.

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	375	V
V_{CEO}	Collector-Emitter Voltage	350	V
V_{CEV}	Collector-Emitter Voltage $V_{BE} = -1.5V$	375	V
V_{CER}	Collector-Emitter Voltage $R_{BE} \leq 50 \Omega$	375	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	3	A
I_{CM}	Collector Current-Peak	5	A
I_B	Base Current-Continuous	1.5	A
P_C	Collector Power Dissipation@ $T_C=25^\circ\text{C}$	100	W
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.75	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

 $T_C=25^\circ\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE0(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=200\text{mA}; I_B=0$	350			V
$V_{CEV(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=100\text{mA}; V_{BE}=-1.5\text{V}$	375			V
$V_{CER(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=200\text{mA}; R_{BE}\leq 50\Omega$	375			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=20\text{mA}; I_C=0$	6			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=0.2\text{A}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=2\text{A}; I_B=0.2\text{A}$			2.0	V
I_{CEV}	Collector Cutoff Current	$V_{CE}=360\text{V}; V_{BE(off)}=-1.5\text{V}$ $V_{CE}=360\text{V}; V_{BE(off)}=-1.5\text{V}; T_C=125^\circ\text{C}$			2.0 5.0	mA
I_{CEO}	Collector Cutoff Current	$V_{CE}=250\text{V}; I_B=0$			2.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=6\text{V}; I_C=0$			1.0	mA
h_{FE-1}	DC Current Gain	$I_C=0.5\text{A}; V_{CE}=5\text{V}$	20			
h_{FE-2}	DC Current Gain	$I_C=2\text{A}; V_{CE}=3\text{V}$	10		50	
C_{OB}	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{test}=1\text{MHz}$			150	pF

Switching Times

t_d	Delay Time	$I_C=2\text{A}; I_{B1}=-I_{B2}=0.2\text{A}; V_{CC}=200\text{V}$		0.07		μs
t_r	Rise Time				1.75	μs
t_{stg}	Storage Time				3.0	μs
t_f	Fall Time				1.5	μs