

isc Silicon NPN Power Transistor

2SC3831

DESCRIPTION

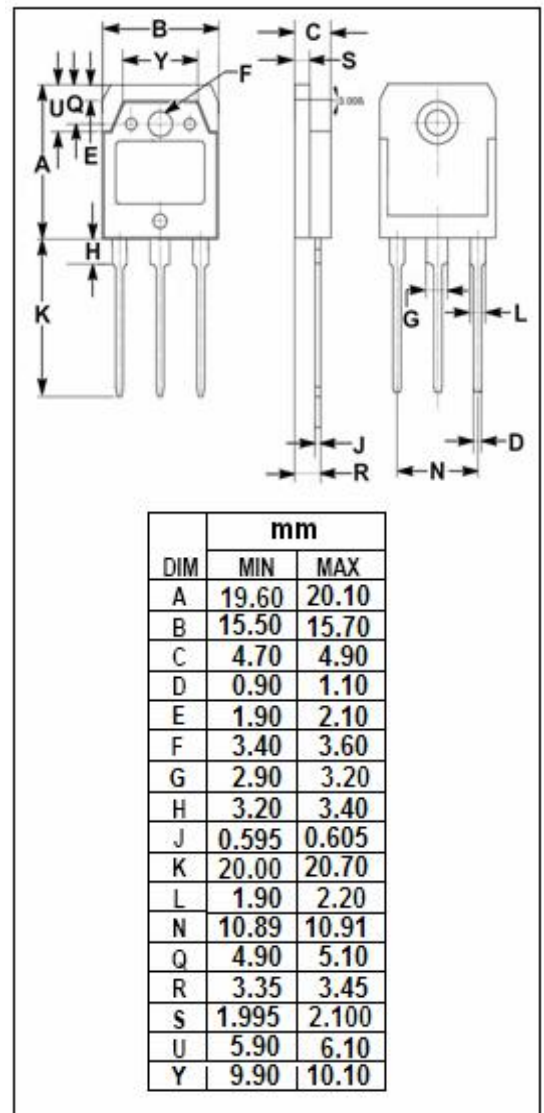
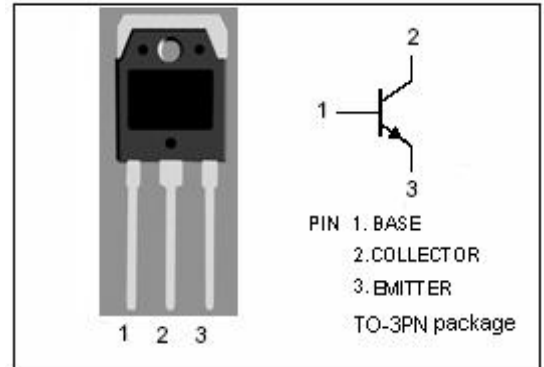
- Low Collector Saturation Voltage
: $V_{CE(sat)} = 0.5V(\text{Max}) @ I_C = 5A$
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 500V (\text{Min})$
- High Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

- Designed for switching regulator and general purpose applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	600	V
V_{CEO}	Collector-Emitter Voltage	500	V
V_{EBO}	Emitter-Base Voltage	10	V
I_C	Collector Current-Continuous	10	A
I_{CM}	Collector Current-Pulse	20	A
I_B	Base Current-Continuous	4	A
P_C	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	100	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$



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ELECTRICAL CHARACTERISTICS

T_c=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	I _C = 25mA; I _B = 0	500			V
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 5A; I _B = 1A			0.5	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 5A; I _B = 1A			1.3	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 600V; I _E = 0			1	mA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 10V; I _C = 0			100	μA
h _{FE}	DC Current Gain	I _C = 5A; V _{CE} = 4V	10		30	
f _T	Current-Gain—Bandwidth Product	I _E = -1A; V _{CE} = 12V		8		MHz
C _{OB}	Output Capacitance	I _E = 0; V _{CB} = 10V; f _{test} = 1.0MHz		105		pF
Switching times						
t _{on}	Turn-on Time	I _C = 5A; I _{B1} =0.5A; I _{B2} = -1A; R _L = 40 Ω; V _{CC} = 200V			1.0	μs
t _{stg}	Storage Time				4.5	μs
t _f	Fall Time				0.5	μs

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