

isc Silicon NPN Power Transistor

2SC4164

DESCRIPTION

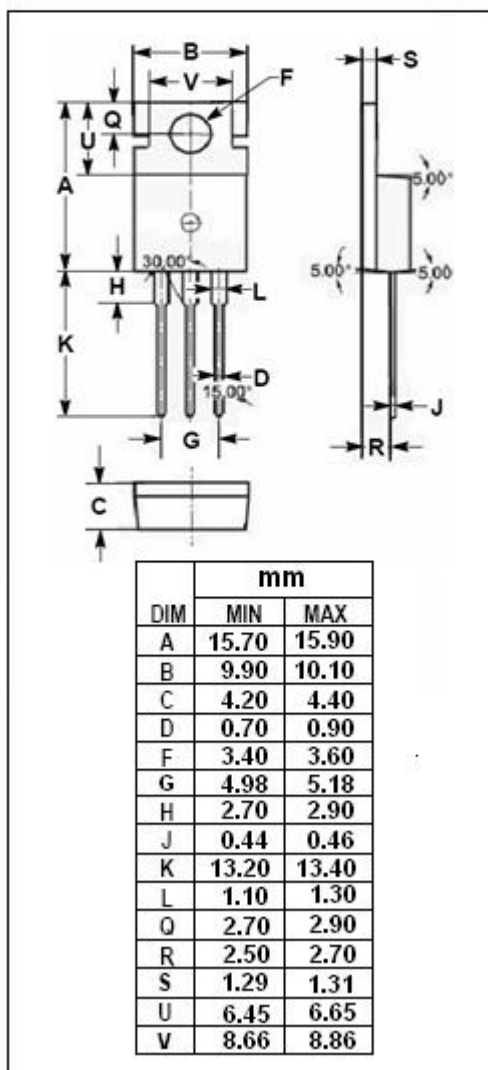
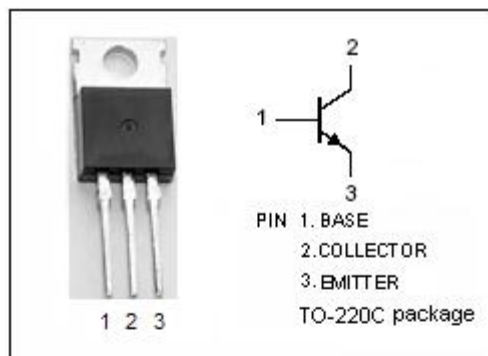
- Collector-Emitter Breakdown Voltage-
: $V_{(BR)CEO} = 400V(\text{Min})$
- High Switching Speed
- Wide Area of Safe Operation
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

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	500	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	12	A
I_{CM}	Collector Current-Peak	25	A
I_B	Base Current-Continuous	4	A
P_C	Collector Power Dissipation @ $T_a=25^\circ\text{C}$	1.75	W
	Collector Power Dissipation @ $T_c=25^\circ\text{C}$	70	
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55~150	$^\circ\text{C}$



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ELECTRICAL CHARACTERISTICS

Tj=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 1\text{mA}; I_E = 0$	500			V
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}; R_{BE} = \infty$	400			V
$V_{CEX(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C = 6\text{A}; I_{B1} = 0.6\text{A}, I_{B2} = -2.4\text{A}, L = 500\text{ }\mu\text{H, clamped}$	400			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 1\text{mA}; I_C = 0$	7			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 8\text{A}; I_B = 1.6\text{A}$			0.8	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 8\text{A}; I_B = 1.6\text{A}$			1.5	V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 400\text{V}; I_E = 0$			10	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 5\text{V}; I_C = 0$			10	μA
h_{FE-1}	DC Current Gain	$I_C = 1.6\text{A}; V_{CE} = 5\text{V}$	15		50	
h_{FE-2}	DC Current Gain	$I_C = 8\text{A}; V_{CE} = 5\text{V}$	10			
h_{FE-3}	DC Current Gain	$I_C = 10\text{mA}; V_{CE} = 5\text{V}$	10			
C_{OB}	Output Capacitance	$I_E = 0; V_{CB} = 10\text{V}; f = 1\text{MHz}$		160		pF
f_T	Current-Gain—Bandwidth Product	$I_C = 1.6\text{A}; V_{CE} = 10\text{V}$		20		MHz

Switching Times

t_{on}	Turn-On Time	$I_C = 10\text{A}; I_{B1} = 2\text{A}; I_{B2} = -4\text{A}; V_{CC} = 200\text{V}; R_L = 20\text{ }\Omega$			0.5	μs
t_{stg}	Storage Time				2.5	μs
t_f	Fall Time				0.3	μs

hFE-1 Classifications

L	M	N
15-30	20-40	30-50

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