

New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
 SPRINGFIELD, NEW JERSEY 07081
 U.S.A.

TELEPHONE: (973) 376-2922
 (212) 227-6005

Silicon NPN Power Transistor

2SC3164

DESCRIPTION

- Low Collector Saturation Voltage-
 $V_{CE(sat)} = 1.0V(\text{Max.}) @ I_C = 5A$
- Fast Switching Speed

APPLICATIONS

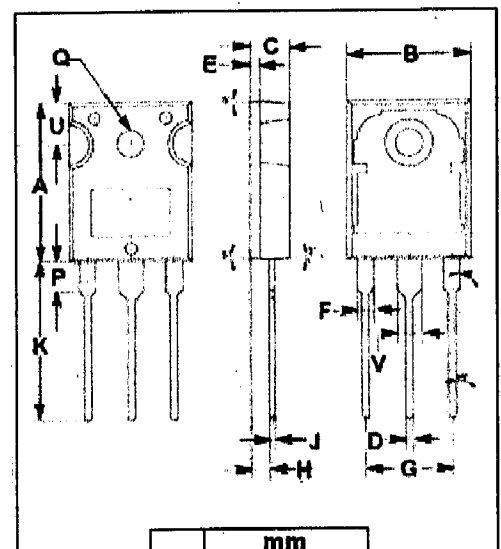
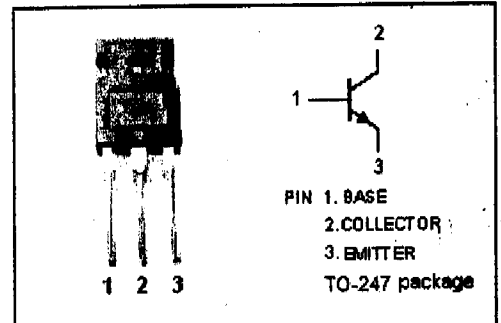
- Designed for switching regulator, DC-DC converter and high frequency power amplifier applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CB0}	Collector-Base Voltage	500	V
V_{CE0}	Collector-Emitter Voltage	400	V
V_{CEP}	Collector-Emitter Voltage $R_{\theta JC} = 100^\circ\text{C/W}$	450	V
V_{EB0}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	10	A
I_{CM}	Collector Current-Peak	20	A
I_B	Base Current-Continuous	4	A
I_{BM}	Base Current-Peak	8	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	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.25	$^\circ\text{C/W}$



DIM	mm	
	MIN	MAX
A	19.80	20.20
B	15.40	15.80
C	4.90	5.10
D	0.90	1.10
E	1.40	1.60
F	1.90	2.10
G	10.80	11.00
H	2.40	2.60
J	0.50	0.70
K	19.50	20.50
P	3.90	4.10
Q	3.30	3.50
U	5.20	5.40
V	2.90	3.10



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

Silicon NPN Power Transistor

2SC3164

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	$I_C = 0.2\text{A}$; $I_B = 0$	400			V
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	$I_C = 5\text{A}$; $I_B = 1\text{A}$			1.0	V
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage	$I_C = 5\text{A}$; $I_B = 1\text{A}$			1.5	V
I_{CB0}	Collector Cutoff Current	$V_{CB0} = 500\text{V}$; $I_E = 0$			100	μA
I_{CE0}	Collector Cutoff Current	$V_{CE} = 400\text{V}$; $I_B = 0$			100	μA
I_{CB}	Collector Cutoff Current	$V_{CB} = 400\text{V}$; $R_{BF} = 100\ \Omega$			100	μA
I_{EB0}	Emitter Cutoff Current	$V_{EB} = 7\text{V}$; $I_C = 0$			10	μA
h_{FE}	DC Current Gain	$I_C = 5\text{A}$; $V_{CE} = 2\text{V}$	10			
f_T	Current-Gain—Bandwidth Product	$I_C = 1\text{A}$; $V_{CE} = 10\text{V}$		20		MHz

Switching times

t_{on}	Turn-On Time				0.3	μs
t_{stg}	Storage Time	$I_C = 5\text{A}$; $I_{B1} = 1\text{A}$; $I_{B2} = -2\text{A}$ $R_L = 30\ \Omega$; $V_{BB2} = 4\text{V}$			1.0	μs
t_f	Fall Time				0.1	μs