

## isc Silicon PNP Power Transistor

2SA1648

## DESCRIPTION

- Available for high-current control in small dimension
- Low collector saturation voltage:  
 $V_{CE(sat)} = -0.3V(\text{Max}) @ I_C = -3A$
- Fast switching speed
- High DC current gain and excellent linearity
- 100% tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

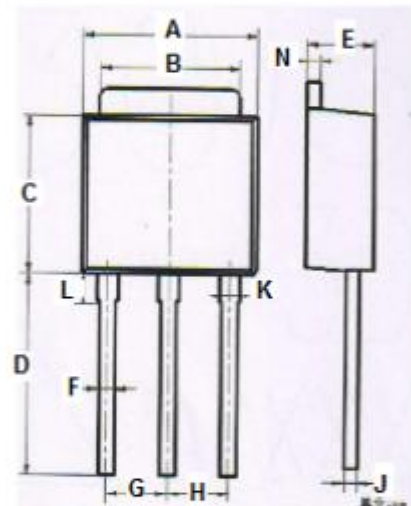
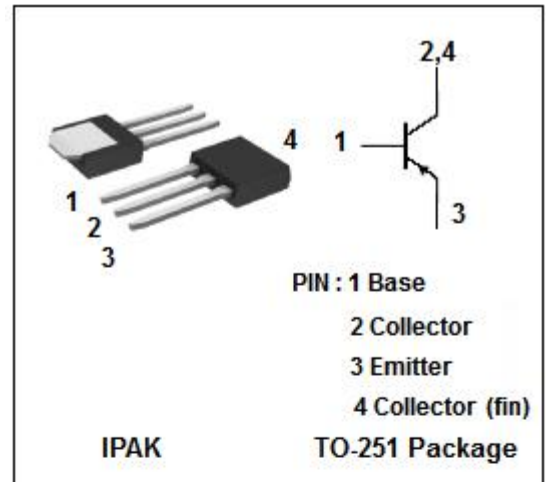
- This transistor is ideal for use in Switching regulators, DC/DC converters, motor drivers, Solenoid drivers and other low-voltage power supply devices, as well as for high-current switching.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	-100	V
$V_{CEO}$	Collector-Emitter Voltage	-60	V
$V_{EBO}$	Emitter-Base Voltage	-7	V
$I_C$	Collector Current-Continuous	-5	A
$I_{CM}$	Collector Current-Peak <sup>NOTE1</sup>	-10	A
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	18	W
	Collector Power Dissipation @ $T_a=25^\circ\text{C}$ <sup>NOTE2</sup>	1.0	
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$

NOTE1:  $PW \leq 10\text{ms}$ , Duty cycle  $\leq 50\%$ 

NOTE2: Printing boarding mounted



DIM	mm	
	MIN	MAX
A	6.40	6.48
B	5.10	5.50
C	5.80	6.20
D	9.20	9.60
E	2.20	2.40
F	0.50	0.70
G	2.09	2.49
H	2.09	2.49
J	0.40	0.60
K	0.70	0.90
L	1.60	2.00
N	0.40	0.60

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## ELECTRICAL CHARACTERISTICS

T<sub>c</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CE(sat)</sub> -1 <sup>NOTE</sup>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -3A; I <sub>B</sub> = -150mA			-0.3	V
V <sub>CE(sat)</sub> -2 <sup>NOTE</sup>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -4A; I <sub>B</sub> = -200mA			-0.5	V
V <sub>BE(sat)</sub> -1 <sup>NOTE</sup>	Base-Emitter Saturation Voltage	I <sub>C</sub> = -3A; I <sub>B</sub> = -150mA			-1.2	V
V <sub>BE(sat)</sub> -2 <sup>NOTE</sup>	Base-Emitter Saturation Voltage	I <sub>C</sub> = -4A; I <sub>B</sub> = -200mA			-1.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = -60V; I <sub>E</sub> = 0			-10	μ A
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = -5V; I <sub>C</sub> = 0			-10	μ A
h <sub>FE-1</sub> <sup>NOTE</sup>	DC Current Gain	I <sub>C</sub> = -0.5A; V <sub>CE</sub> = -2V	100			
h <sub>FE-2</sub> <sup>NOTE</sup>	DC Current Gain	I <sub>C</sub> = -1A; V <sub>CE</sub> = -2V	100		400	
h <sub>FE-3</sub> <sup>NOTE</sup>	DC Current Gain	I <sub>C</sub> = -3A; V <sub>CE</sub> = -2V	60			
C <sub>OB</sub>	Output Capacitance	I <sub>E</sub> = 0; V <sub>CB</sub> = -10V; f= 1.0MHz		80		pF
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = -500mA; V <sub>CE</sub> = -10V		90		MHz

NOTE:Pulse test PW≤350us,duty cycle ≤2%/pulse

◆ h<sub>FE-2</sub> Classifications

M	L	K
100-200	150-300	200-400

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