

# isc Silicon PNP Power Transistor

## 2SA1648-Z

### DESCRIPTION

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

### APPLICATIONS

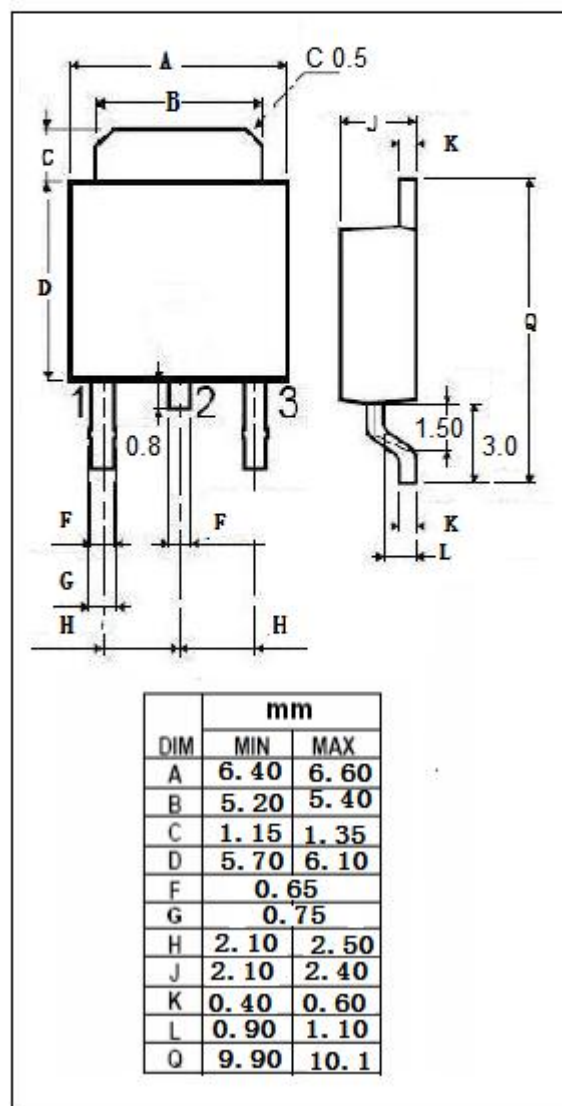
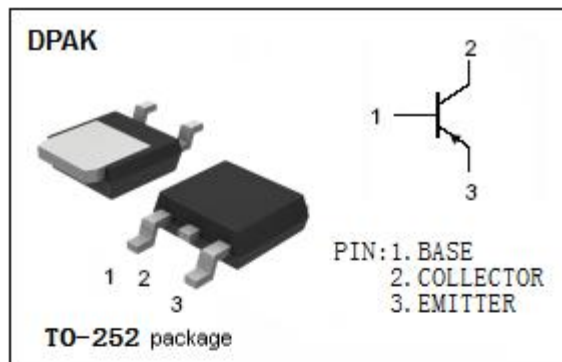
- This transistor is ideal for use in Switching regulators, DC/DC converters, motor drivers, Solenoid drivers and other low-voltage power supply devices, as well as for high-current switching.

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

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 @ $T_C=25^{\circ}C$	18	W
	Collector Power Dissipation @ $T_a=25^{\circ}C$ <sup>NOTE2</sup>	1.0	
$T_J$	Junction Temperature	150	$^{\circ}C$
$T_{stg}$	Storage Temperature Range	-55~150	$^{\circ}C$

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

NOTE2: Printing boarding mounted



## isc Silicon PNP Power Transistor

## 2SA1648-Z

## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CE(sat)-1</sub> <sup>NOTE</sup>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -3A; I <sub>B</sub> = -150mA			-0.3	V
V <sub>CE(sat)-2</sub> <sup>NOTE</sup>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -4A; I <sub>B</sub> = -200mA			-0.5	V
V <sub>BE(sat)-1</sub> <sup>NOTE</sup>	Base-Emitter Saturation Voltage	I <sub>C</sub> = -3A; I <sub>B</sub> = -150mA			-1.2	V
V <sub>BE(sat)-2</sub> <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-1</sub> Classifications

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

**NOTICE:**

ISC reserves the rights to make changes of the content herein the datasheet at any time without notification. The information contained herein is presented only as a guide for the applications of our products.

ISC products are intended for usage in general electronic equipment. The products are not designed for use in equipment which require specialized quality and/or reliability, or in equipment which could have applications in hazardous environments, aerospace industry, or medical field. Please contact us if you intend our products to be used in these special applications.

ISC makes no warranty or guarantee regarding the suitability of its products for any particular purpose, nor does ISC assume any liability arising from the application or use of any products, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages.