

isc Silicon NPN Power Transistors
2SC4148
DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CE(SUS)} = 40V(\text{Min})$
- Collector Current- $I_C = 7A(\text{Max.})$
- Low Collector Saturation Voltage
: $V_{CE(sat)} = 0.3V(\text{Max.}) @ I_C = 3.5A$
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

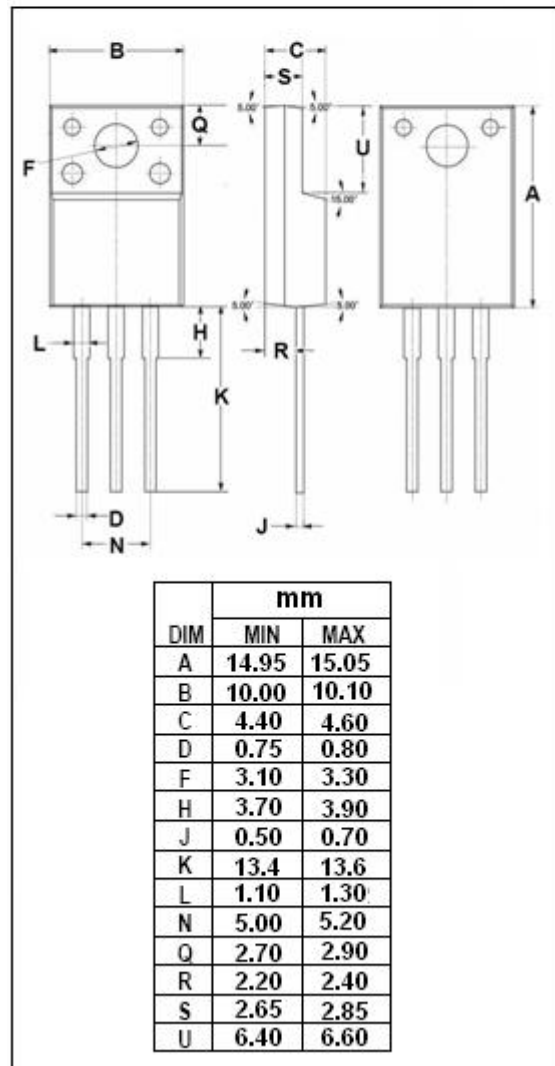
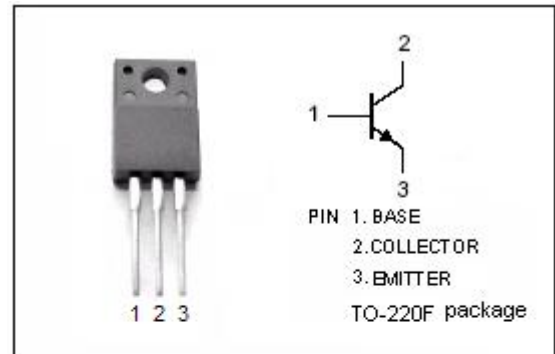
- Designed for use in drivers such as DC/DC converters and actuators.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	7	A
I_{CM}	Collector Current-Peak	14	A
I_B	Base Current-Continuous	1.5	A
I_{BM}	Base Current-Peak	2	A
P_T	Total Power Dissipation @ $T_C = 25^\circ\text{C}$	25	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
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	5	$^\circ\text{C}/\text{W}$



isc Silicon NPN Power Transistors
2SC4148
ELECTRICAL CHARACTERISTICS

 T_C=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CE0(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 0.1A; I _B = 0	40			V
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 3.5A; I _B = 0.2A			0.3	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 3.5A; I _B = 0.2A			1.2	V
I _{CBO}	Collector Cutoff Current	At rated Voltage			100	μ A
I _{CEO}	Collector Cutoff Current	At rated Voltage			100	μ A
I _{EBO}	Emitter Cutoff Current	At rated Voltage			100	μ A
h _{FE}	DC Current Gain	I _C = 3.5A ; V _{CE} = 2V	70			
f _T	Current-Gain—Bandwidth Product	I _C = 0.7A; V _{CE} = 10V		50		MHz

Switching times

t _{on}	Turn-on Time				0.3	μ s
t _{stg}	Storage Time	I _C = 3.5A, I _{B1} = 0.35A; I _{B2} = -0.35A; R _L = 8 Ω ; V _{BB2} = 4V			1.5	μ s
t _f	Fall Time				0.5	μ s

**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.