

### **isc Silicon NPN Power Transistor**

# 2SD1213

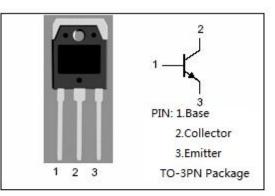
### DESCRIPTION

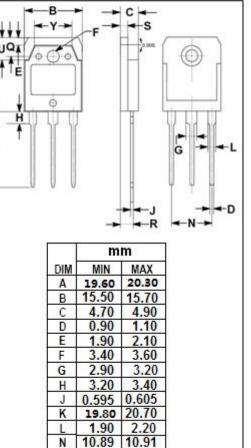
- High Collector Current:: Ic= 20A
- Low Collector Saturation Voltage : V<sub>CE(sat)</sub>= 0.4V(Max)@I<sub>C</sub>= 8A
- Complement to Type 2SB904
- · Minimum Lot-to-Lot variations for robust device performance and reliable operation

### **APPLICATIONS**

· Designed for large current switching of relay drivers, high-speed inverters, converters applications.

ABSOLUTE MAXIMUM RATINGS(Ta=25°C)			
SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CBO</sub>	Collector-Base Voltage	60	V
V <sub>CEO</sub>	Collector-Emitter Voltage	30	V
$V_{\text{EBO}}$	Emitter-Base Voltage	6	V
lc	Collector Current-Continuous	20	А
Ісм	Collector Current-Peak	30	А
Pc	Total Power Dissipation @ T <sub>C</sub> =25℃	60	W
	Total Power Dissipation @ T₂=25℃	2.5	vV
TJ	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature Range	-55~150	°C





isc website: <u>www.iscsemi.com</u>

Q

R

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3.35

.995

5.90

5.10

3.45

2.100

6.20

9.90 10.10



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### **ELECTRICAL CHARACTERISTICS**

#### Tc=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 1mA; R <sub>BE</sub> = ∞	30			V
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = 1mA; I <sub>E</sub> = 0	60			V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> = 1mA; I <sub>C</sub> = 0	6			V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 8A; I <sub>B</sub> = 0.4A			0.4	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 40V; I <sub>E</sub> = 0			0.1	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 4V; I <sub>C</sub> = 0			0.1	mA
h <sub>FE-1</sub>	DC Current Gain	Ic= 1A; V <sub>CE</sub> = 2V	70		280	
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 10A; V <sub>CE</sub> = 2V	30			
f⊤	Current-Gain—Bandwidth Product	I <sub>C</sub> = 1A; V <sub>CE</sub> = 5V		120		MHz

#### Switching times

t <sub>on</sub>	Turn-on Time		0.3	μ S
t <sub>stg</sub>	Storage Time	R <sub>L</sub> = 1 Ω , V <sub>CC</sub> = 10V I <sub>C</sub> = 10A; I <sub>B1</sub> = I <sub>B2</sub> = 0.5A	0.6	μ S
t <sub>f</sub>	Fall Time		0.02	μ S

#### h<sub>FE-1</sub> Classifications

Q	R	s
70-140	100-200	140-280

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