

**isc Silicon NPN Power Transistor**
**2SD866**
**DESCRIPTION**

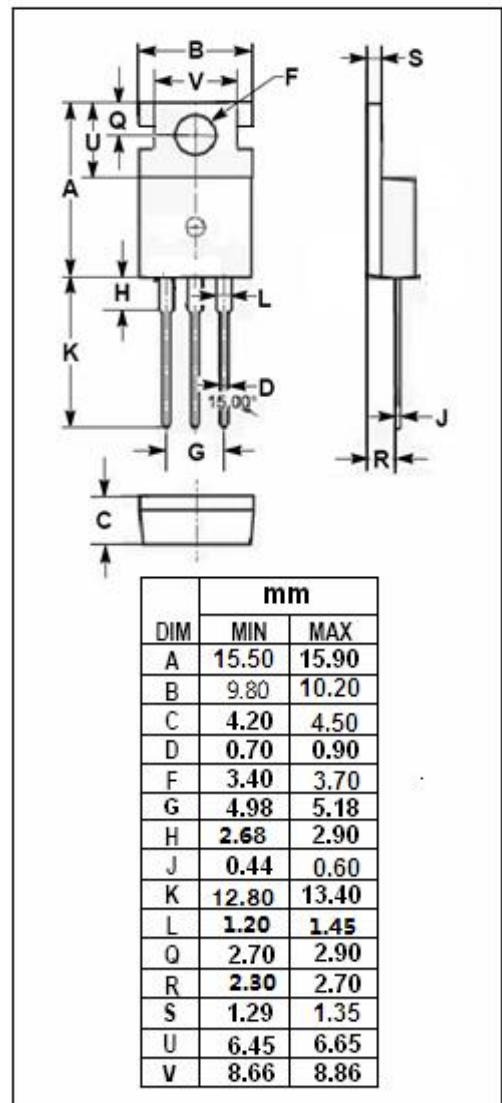
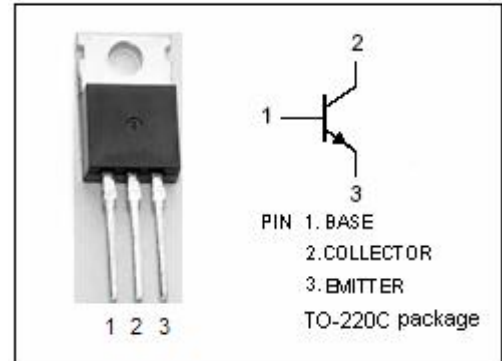
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 80V(\text{Min})$
- Good Linearity of  $h_{FE}$
- Low Collector Saturation Voltage  
:  $V_{CE(\text{sat})} = 0.5V(\text{Max})@I_C = 5A$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- Designed for power switching applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	130	V
$V_{CEO}$	Collector-Emitter Voltage	80	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	7	A
$I_{CM}$	Collector Current-Peak	15	A
$P_C$	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	40	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$



**isc Silicon NPN Power Transistor****2SD866****ELECTRICAL CHARACTERISTICS****T<sub>c</sub>=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 10mA; I <sub>B</sub> = 0	80			V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5A; I <sub>B</sub> = 0.25A			0.5	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 5A; I <sub>B</sub> = 0.25A			1.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 100V; I <sub>E</sub> = 0			10	μA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> = 0			10	μA
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 0.1A; V <sub>CE</sub> = 2V	45			
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 3A; V <sub>CE</sub> = 2V	60		260	
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = 0.5A; V <sub>CE</sub> = 10V		30		MHz

**Switching Times**

t <sub>on</sub>	Turn-On Time	I <sub>C</sub> = 3A; I <sub>B1</sub> = I <sub>B2</sub> = 0.2A		0.5		μs
t <sub>s</sub>	Storage Time			1.5		μs
t <sub>f</sub>	Fall Time			0.1		μs

**◆ h<sub>FE-2</sub> Classifications**

R	Q	P
60-120	90-180	130-260

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