

**isc Silicon NPN Darlington Power Transistor**
**2SD1500**
**DESCRIPTION**

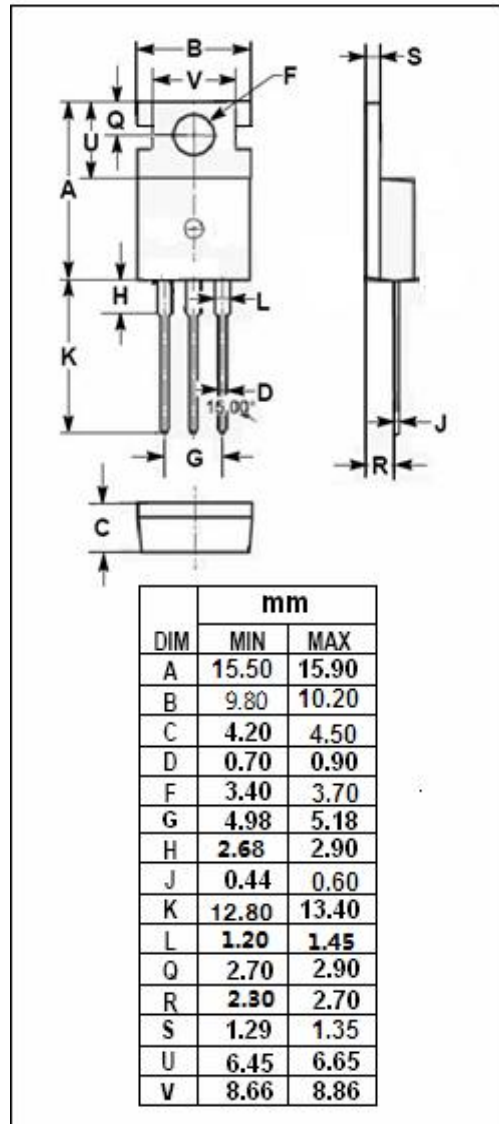
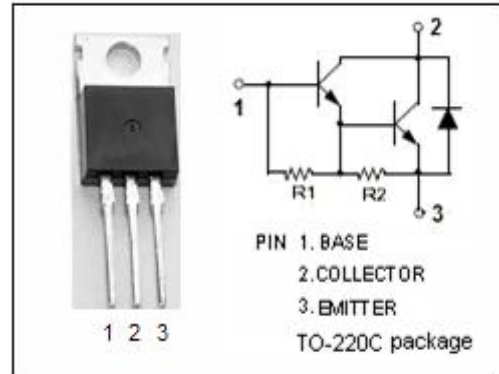
- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 100V(\text{Min})$
- High DC Current Gain  
:  $h_{FE} = 1000(\text{Min}) @ I_C = 10A$
- Low Saturation Voltage
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

- Designed for high current switching applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	150	V
$V_{CEO}$	Collector-Emitter Voltage	100	V
$V_{EBO}$	Emitter-Base Voltage	8	V
$I_C$	Collector Current-Continuous	10	A
$I_B$	Base Current-Continuous	1	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 Darlington Power Transistor

## 2SD1500

## 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	100			V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 25mA			1.5	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 25mA			2.0	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 150V; I <sub>E</sub> = 0			10	μ A
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 8V; I <sub>C</sub> = 0			16	mA
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 10A; V <sub>CE</sub> = 2V	1000			
V <sub>ECF</sub>	C-E Diode Forward Voltage	I <sub>F</sub> = 10A			3.0	V
C <sub>OB</sub>	Output Capacitance	I <sub>E</sub> = 0; V <sub>CB</sub> = 50V, f <sub>test</sub> = 1MHz		75		pF
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = 1A; V <sub>CE</sub> = 5V		20		MHz

## Switching times

t <sub>on</sub>	Turn-on Time	I <sub>B1</sub> = I <sub>B2</sub> = 25mA; R <sub>L</sub> = 5 Ω; V <sub>CC</sub> = 50V		0.6		μ s
t <sub>stg</sub>	Storage Time			3.0		μ s
t <sub>f</sub>	Fall Time			1.0		μ s

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