

# isc Silicon NPN Darlington Power Transistor

# 2SD835

### DESCRIPTION

- High DC Current Gain-  
:  $h_{FE} = 400(\text{Min}) @ I_C = 4A$
- Low Collector Saturation Voltage-  
:  $V_{CE(\text{sat})} = 1.5V(\text{Max.}) @ I_C = 4A$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### APPLICATIONS

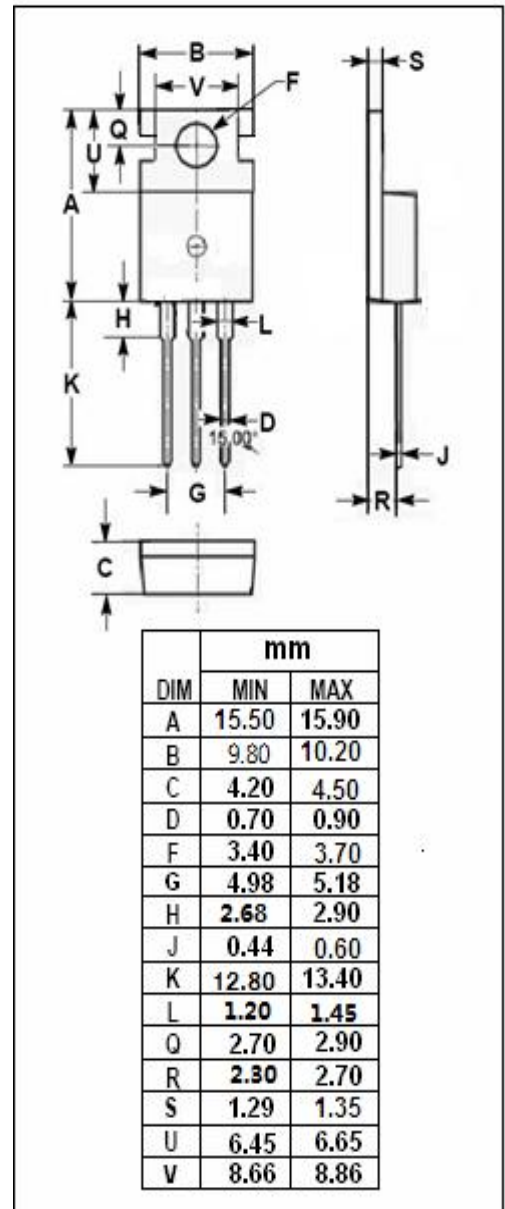
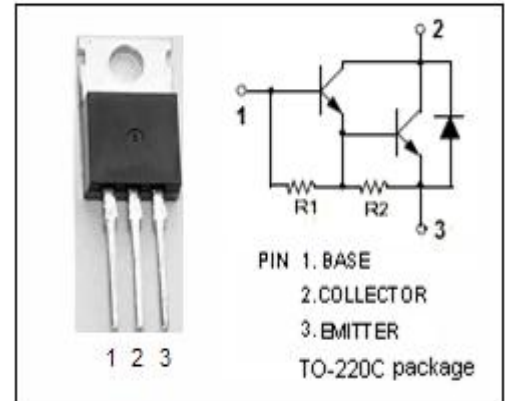
- Electronic ignitor
- Relay & solenoid drivers
- Motor controls
- Switching regulators

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	400	V
$V_{CEO(\text{SUS})}$	Collector-Emitter Voltage	350	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	15	V
$I_C$	Collector Current-Continuous	6	A
$I_B$	Base Current-Continuous	0.3	A
$P_C$	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	40	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{\text{stg}}$	Storage Temperature Range	-45~150	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{\text{th j-c}}$	Thermal Resistance, Junction to Case	3.0	$^\circ\text{C/W}$



**isc Silicon NPN Darlington Power Transistor****2SD835****ELECTRICAL CHARACTERISTICS****T<sub>C</sub>=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 30mA; I <sub>B</sub> = 0	350			V
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 10mA; I <sub>B</sub> = 0	400			V
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = 0.1mA; I <sub>E</sub> = 0	400			V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> = 5mA; I <sub>C</sub> = 0	15			V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 4A; I <sub>B</sub> = 10mA			1.5	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 4A; I <sub>B</sub> = 10mA			2.0	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 400V; I <sub>E</sub> =0			0.1	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 15V; I <sub>C</sub> =0			100	mA
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 4A; V <sub>CE</sub> = 1.5V	400			
<b>Switching Times</b>						
t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 4A, I <sub>B1</sub> = I <sub>B2</sub> = 40mA, R <sub>L</sub> = 10 Ω ; Pw = 20μs, DutyCycle ≤ 2%			1.0	μ s
t <sub>stg</sub>	Storage Time				12.0	μ s
t <sub>f</sub>	Fall Time				6.0	μ s

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