

# isc Silicon NPN Darlington Power Transistor

**2STP535FP**

## DESCRIPTION

- With TO-220F packaging
- Very high DC current gain
- Monolithic darlington transistor with integrated antiparallel collector-emitter diode
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

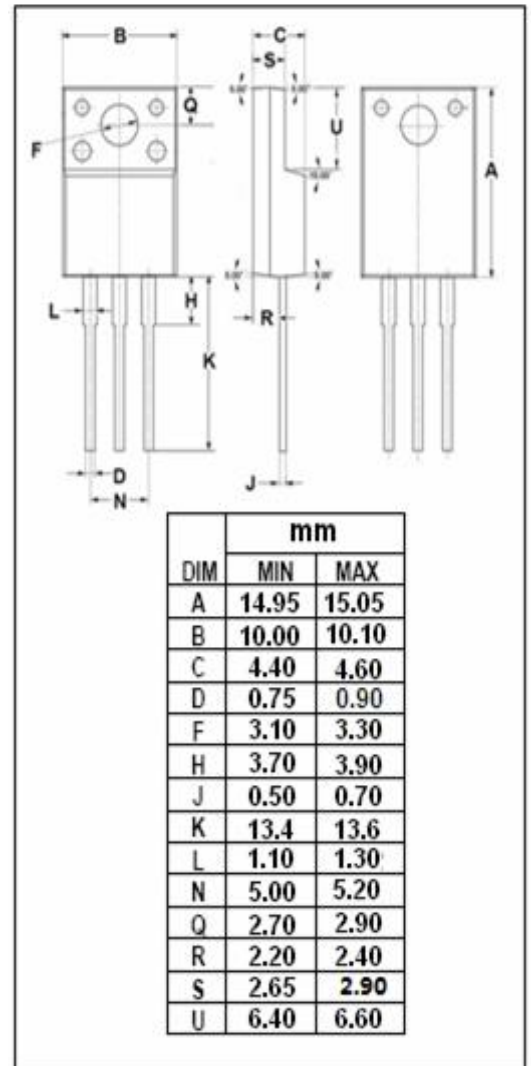
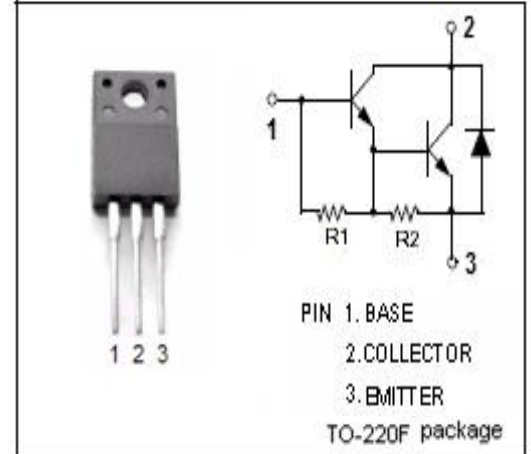
- AC-DC motor control
- Electronic ignition
- Alternator regulator

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	180	V
$V_{CEO}$	Collector-Emitter Voltage	180	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	8	A
$I_{CM}$	Collector Current-Peak	15	A
$I_B$	Base Current- Continuous	1	A
$P_C$	Collector Power Dissipation	37	W
$T_j$	Max.Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature Range	-65~150	$^{\circ}\text{C}$

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance,Junction to Case	3.4	$^{\circ}\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance,Junction to Ambient	62.5	$^{\circ}\text{C/W}$



**isc Silicon NPN Darlington Power Transistor****2STP535FP****ELECTRICAL CHARACTERISTICS****T<sub>c</sub>=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 30mA, I <sub>B</sub> = 0	180		V
V <sub>CE(sat)1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 3A, I <sub>B</sub> = 6mA		2.0	V
V <sub>CE(sat)2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 8A, I <sub>B</sub> = 80mA		2.5	V
V <sub>BE(on)</sub>	Base-Emitter On Voltage	I <sub>C</sub> = 8A ; V <sub>CE</sub> = 4V		2.8	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> =180V, I <sub>E</sub> = 0		50	μ A
I <sub>CEO</sub>	Collector Cutoff Current	V <sub>CE</sub> = 180V, I <sub>B</sub> = 0		50	μ A
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> = 0		100	μ A
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 3A ; V <sub>CE</sub> = 4V	1000	20000	
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 8A ; V <sub>CE</sub> = 4V	200		
V <sub>F</sub>	Diode Forward Voltage	I <sub>F</sub> =10A		2.8	V

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