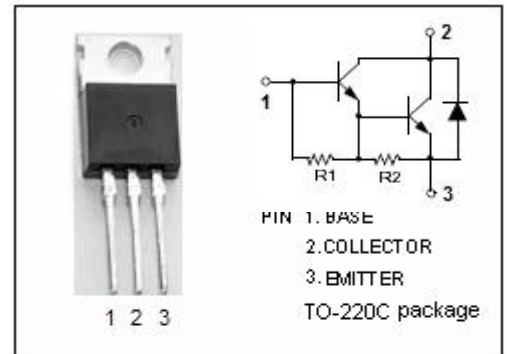


**DESCRIPTION**

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 300V(\text{Min.})$
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 2.0V(\text{Max.}) @ I_C = 5A$

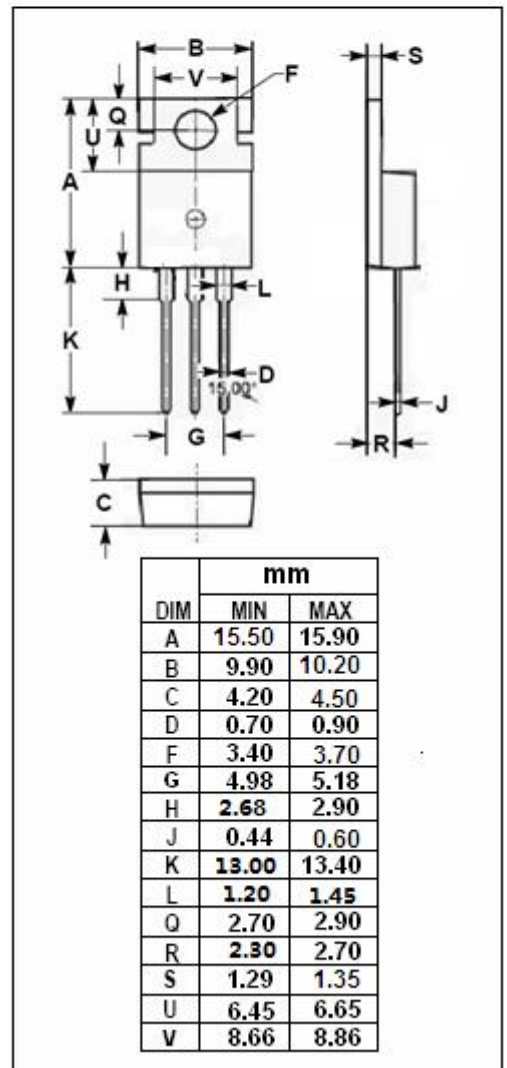
**APPLICATIONS**

- Designed for use in automotive ignition, switching and motor control applications.



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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	300	V
$V_{CEO}$	Collector-Emitter Voltage	300	V
$V_{EBO}$	Emitter-Base Voltage	8	V
$I_C$	Collector Current-Continuous	7	A
$I_{CM}$	Collector Current-Peak	10	A
$I_B$	Base Current- Continuous	1.5	A
$P_C$	Collector Power Dissipation @ $T_c=25^\circ\text{C}$	80	W
$T_j$	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	1.56	$^\circ\text{C/W}$

**SPTECH Silicon NPN Darlington Power Transistor TIP150**

**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	300			V
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = 1.0mA, I <sub>E</sub> = 0	300			V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 1A, I <sub>B</sub> = 10mA			1.5	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 2A, I <sub>B</sub> = 100mA			1.5	V
V <sub>CE(sat)-3</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5A, I <sub>B</sub> = 250mA			2.0	V
V <sub>BE(sat)-1</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 2A, I <sub>B</sub> = 100mA			2.2	V
V <sub>BE(sat)-2</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 5A, I <sub>B</sub> = 250mA			2.3	V
V <sub>F</sub>	C-E Diode Forward Voltage	I <sub>F</sub> = 7A			3.5	V
I <sub>CEO</sub>	Collector Cutoff current	V <sub>CE</sub> = 300V, I <sub>B</sub> = 0			0.25	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 8V; I <sub>C</sub> = 0			15	mA
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 2.5A; V <sub>CE</sub> = 5V	150			
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 5A; V <sub>CE</sub> = 5V	50			
h <sub>FE-3</sub>	DC Current Gain	I <sub>C</sub> = 7A; V <sub>CE</sub> = 5V	15			
C <sub>OB</sub>	Collector Output Capacitance	I <sub>E</sub> = 0; V <sub>CB</sub> = 10V; f= 1MHz			150	pF

Switching Times

t <sub>d</sub>	Delay Time	V <sub>CC</sub> = 250V, I <sub>C</sub> = 5.0 A, I <sub>B1</sub> = -I <sub>B2</sub> = 250mA; t <sub>p</sub> = 20 μ s Duty Cycle ≤ 2%		0.03		μ s
t <sub>r</sub>	Rise Time			0.18		μ s
t <sub>stg</sub>	Storage Time			3.5		μ s
t <sub>f</sub>	Fall Time			1.6		μ s

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