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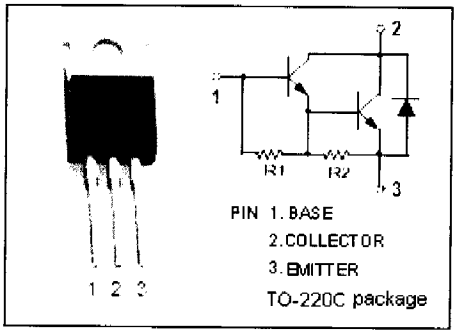
Silicon NPN Darlington Power Transistor

TIP150

DESCRIPTION

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



APPLICATIONS

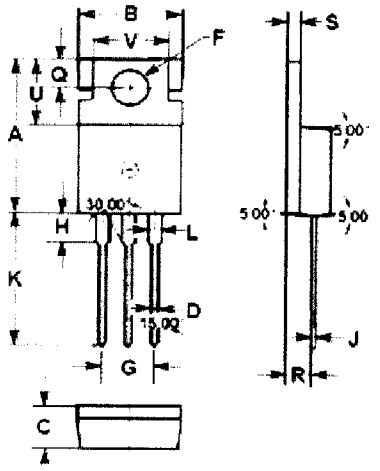
- Designed for use in automotive ignition,switching and motor control applications.

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

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℃	80	W
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature Range	-65~150	℃

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}c}$	Thermal Resistance, Junction to Case	1.56	℃/W



DIM	mm MIN	mm MAX
A	15.70	15.90
B	9.90	10.10
C	4.20	4.40
D	0.70	0.90
F	3.40	3.60
G	4.98	5.18
H	2.70	2.90
J	0.44	0.46
K	13.20	13.40
L	1.10	1.30
Q	2.70	2.90
R	2.50	2.70
S	1.29	1.31
U	6.45	6.65
V	8.66	8.86

ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C= 10mA, I_B= 0	300			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C= 1.0mA, I_E= 0	300			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	I_C= 1A, I_B= 10mA			1.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	I_C= 2A, I_B= 100mA			1.5	V
$V_{CE(sat)-3}$	Collector-Emitter Saturation Voltage	I_C= 5A, I_B= 250mA			2.0	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	I_C= 2A, I_B= 100mA			2.2	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	I_C= 5A, I_B= 250mA			2.3	V
V_F	C-E Diode Forward Voltage	I_F= 7A			3.5	V
I_{CEO}	Collector Cutoff current	V_{CE}= 300V, I_B= 0			0.25	mA
I_{EBO}	Emitter Cutoff Current	V_{EB}= 8V; I_C= 0			15	mA
h_{FE-1}	DC Current Gain	I_C= 2.5A; V_{CE}= 5V	150			
h_{FE-2}	DC Current Gain	I_C= 5A; V_{CE}= 5V	50			
h_{FE-3}	DC Current Gain	I_C= 7A; V_{CE}= 5V	15			
C_{OB}	Collector Output Capacitance	I_E= 0; V_{CB}= 10V; f= 1MHz			150	pF

Switching Times

t_d	Delay Time	V_{CC} = 250V, I_C = 5.0 A, I_{B1}= -I_{B2}= 250mA; t_p= 20 μ s Duty Cycle≤2%		0.03		μ s
t_r	Rise Time			0.18		μ s
t_{stg}	Storage Time			3.5		μ s
t_f	Fall Time			1.6		μ s