

## SILICON POWER TRANSISTORS

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

### DESCRIPTION :

- Collector–Emitter Breakdown Voltage  
 $V_{(BR)CEO} = 400V(\text{Min.})$
- Collector Saturation Voltage  
 $V_{CE(\text{sat})} = 2.0V(\text{Max}) @ I_C = 5.0A$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

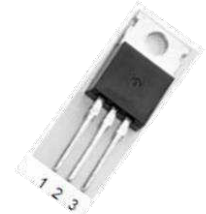
**NPN**

**TIP152**

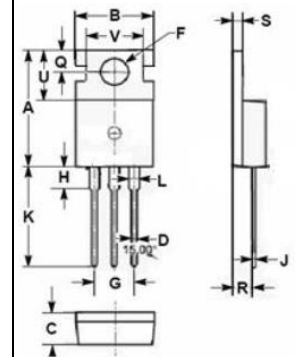
**7 AMPERES  
DARLINGTON  
POWER TRANSISTOR  
400 VOLTS  
80 WATTS**

### MAXIMUM RATINGS

Characteristic	Symbol	TIP152	Unit
Collector-Base Voltage	$V_{CBO}$	400	V
Collector-Emitter Voltage	$V_{CEO}$	400	V
Emitter-Base Voltage	$V_{EBO}$	8	V
Collector Current-Continuous	$I_C$	7	A
Collector Current-Peak	$I_{CM}$	10	A
Base Current- Continuous	$I_B$	1.5	A
Collector Power Dissipation @ $T_C=25^\circ\text{C}$	$P_C$	80	Watts
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-65 to +150	$^\circ\text{C}$



**TO-220**



PIN 1.BASE.  
2.COLLECTOR  
3.EMITTER

DIM	MILLIMETERS	
	MIN	MAX
A	15.50	15.90
B	9.80	10.20
C	4.20	4.50
D	0.70	0.90
F	3.40	3.70
G	4.98	5.18
H	2.68	2.90
J	0.44	0.60
K	12.80	13.40
L	1.20	1.45
Q	2.70	2.90
R	2.30	2.70
S	1.29	1.35
U	6.45	6.65
V	8.66	8.86

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{th\ j-c}$	1.56	$^\circ\text{C/W}$

**ELECTRICAL CHARACTERISTICS ( $T_C=25^{\circ}\text{C}$  unless otherwise noted)**

Characteristic	Symbol	Min.	Max	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Breakdown Voltage ( $I_C = 10\text{ mA}$ , $I_B = 0$ )	$V_{CEO}$	400		V
Collector-Base Breakdown Voltage ( $I_C = 1\text{ mA}$ , $I_E = 0$ )	$V_{CBO}$	400		V
Collector Cutoff Current ( $V_{CE} = 400\text{ V}$ , $I_B = 0$ )	$I_{CEO}$		0.25	mA
Emitter Cutoff Current ( $V_{EB} = 8.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$		15	mA

**ON CHARACTERISTICS**

DC Current Gain ( $I_C = 2.5\text{ A}$ , $V_{CE} = 5.0\text{ V}$ ) ( $I_C = 5.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ ) ( $I_C = 7.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ )	$h_{FE}$	150 50 15		
Collector-Emitter Saturation Voltage ( $I_C = 1.0\text{ A}$ , $I_B = 10\text{ mA}$ ) ( $I_C = 2.0\text{ A}$ , $I_B = 100\text{ mA}$ ) ( $I_C = 5.0\text{ A}$ , $I_B = 250\text{ mA}$ )	$V_{CE(sat)}$		1.5 1.5 2.0	V
Base-Emitter Saturation Voltage ( $I_C = 2\text{ A}$ , $I_B = 100\text{ mA}$ ) ( $I_C = 5\text{ A}$ , $I_B = 250\text{ mA}$ )	$V_{BE(sat)}$		2.2 2.3	V
Diode Forward Voltage ( $I_F = 7.0\text{ A}$ )	$V_F$		3.5	V

**DYNAMIC CHARACTERISTICS**

Collector Output Capacitance ( $V_{CB} = 10\text{ V}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$ )	$C_{Ob}$		150	pF
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