

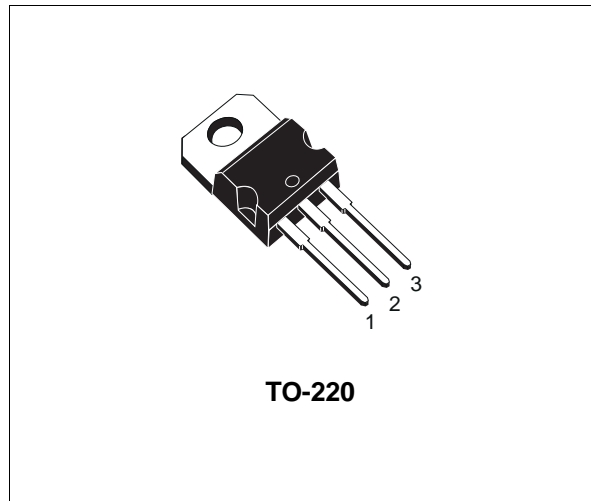
## SILICO NPN POWER DARLINGTON TRANSISTORS

- 2N6388 IS SGS-THOMSON PREFERRED SALESTYPE
- NPN DARLINGTON
- HIGH CURRENT CAPABILITY
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

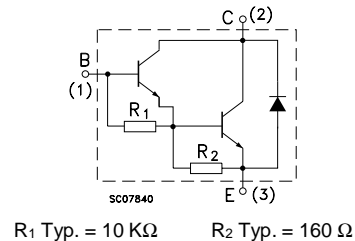
### DESCRIPTION

The 2N6387 and 2N6388 are silicon epitaxial-base NPN power transistor in monolithic Darlington configuration mounted in Jedec TO-220 plastic package.

They are intended for use in low and medium frequency power applications.



### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		2N6387	2N6388	
V <sub>CB0</sub>	Collector-Base Voltage (I <sub>B</sub> = 0)	60	80	V
V <sub>CEV</sub>	Collector-Emitter Voltage (V <sub>BE</sub> = -1.5V)	60	80	V
V <sub>CER</sub>	Collector-Emitter Voltage (R <sub>BE</sub> ≤ 100Ω)	60	80	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)	60	80	V
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)	5		V
I <sub>C</sub>	Collector Current	10		A
I <sub>CM</sub>	Collector Peak Current	15		A
I <sub>B</sub>	Base Current	0.25		A
P <sub>tot</sub>	Total Dissipation at T <sub>c</sub> ≤ 25 °C	65		W
T <sub>stg</sub>	Storage Temperature	-65 to 150		°C
T <sub>j</sub>	Max. Operating Junction Temperature	150		°C

## 2N6387/2N6388

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	1.92	°C/W
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### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

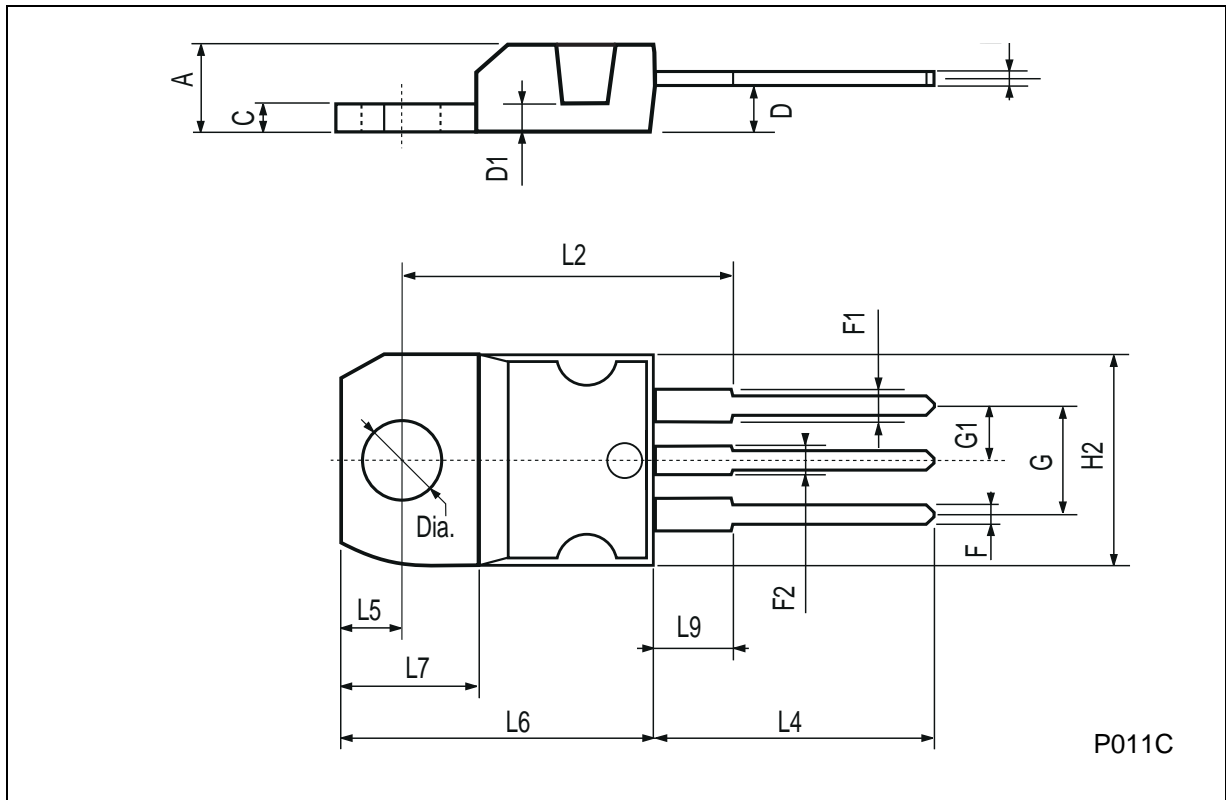
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CEV</sub>	Collector Cut-off Current (V <sub>BE</sub> = -1.5V)	V <sub>CE</sub> = rated V <sub>CEO</sub> V <sub>CE</sub> = rated V <sub>CEO</sub> T <sub>C</sub> = 125 °C			0.3 3	mA mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	for <b>2N6387</b> V <sub>CE</sub> = 60 V for <b>2N6388</b> V <sub>CE</sub> = 80 V			1 1	mA mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			5	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 200 mA for <b>2N6387</b> for <b>2N6388</b>	60 80			V V
V <sub>CER(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 200 mA R <sub>BE</sub> = 100 Ω for <b>2N6387</b> for <b>2N6388</b>	60 80			V V
V <sub>CEV(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 200 mA V <sub>BE</sub> = -1.5V for <b>2N6387</b> for <b>2N6388</b>	60 80			V V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5 A I <sub>B</sub> = 10 mA I <sub>C</sub> = 10 A I <sub>B</sub> = 100 mA			2 3	V V
V <sub>BE*</sub>	Base-Emitter Voltage	I <sub>C</sub> = 5 A V <sub>CE</sub> = 3 V I <sub>C</sub> = 10 A V <sub>CE</sub> = 3 V			2.8 4.5	V V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 5 A V <sub>CE</sub> = 3 V I <sub>C</sub> = 10 A V <sub>CE</sub> = 3 V	1000 100		20000	
h <sub>fe</sub>	Small Signal Current Gain	I <sub>C</sub> = 1 A V <sub>CE</sub> = 10 V f = 1MHz I <sub>C</sub> = 1 A V <sub>CE</sub> = 10 V f = 1KHz	20 1000			
V <sub>F*</sub>	Parallel-diode Forward Voltage	I <sub>F</sub> = 10 A			4	V
C <sub>CBO</sub>	Collector Base Capacitance	I <sub>E</sub> = 0 V <sub>CB</sub> = 10 V f = 1MHz			200	pF
I <sub>s/b**</sub>	Second Breakdown Collector Current	V <sub>CE</sub> = 25 V	2.6			A
E <sub>s/b</sub>	Second Breakdown Energy	L = 12 mH R <sub>BE</sub> = 100 Ω V <sub>BE</sub> = -1.5 V I <sub>C</sub> = 4.5 A	120			mJ

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

\*\* Pulsed: 1s non repetitive pulse.

**TO-220 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



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