SGS-THOMSON
MICROELECTRONICS

2N6387
2N6388

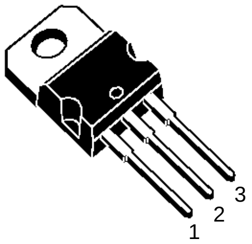
SILICO NPN POWER DARLINGTON TRANSISTORS

- 2N6388 IS SGS-THOMSON PREFERRED SALESTYPE

DESCRIPTION

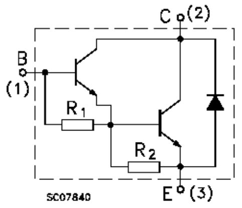
The 2N6387 and 2N6388 are silicon epitaxial-base NPN power transistor in monolithic Darlington configuration mounted in Jedec TO-220 plastic package.

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



TO-220

INTERNAL SCHEMATIC DIAGRAM



R_1 Typ. = 10 KΩ R_2 Typ. = 150 Ω

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		2N6387	2N6388	
V_{CBO}	Collector-Base Voltage (I_B = 0)	60	80	V
V_{CEV}	Collector-Emitter Voltage (V_{BE} = -1.5V)	60	80	V
V_{CER}	Collector-Emitter Voltage ($R_{BE} \leq 100\Omega$)	60	80	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	60	80	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5		V
I_C	Collector Current	10		A
I_{CM}	Collector Peak Current	15		A
I_B	Base Current	0.25		A
P_{tot}	Total Dissipation at $T_c \leq 25$ °C	65		W
T_{stg}	Storage Temperature	-65 to 150		°C
T_j	Max. Operating Junction Temperature	150		°C

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.92	^{o}C/W

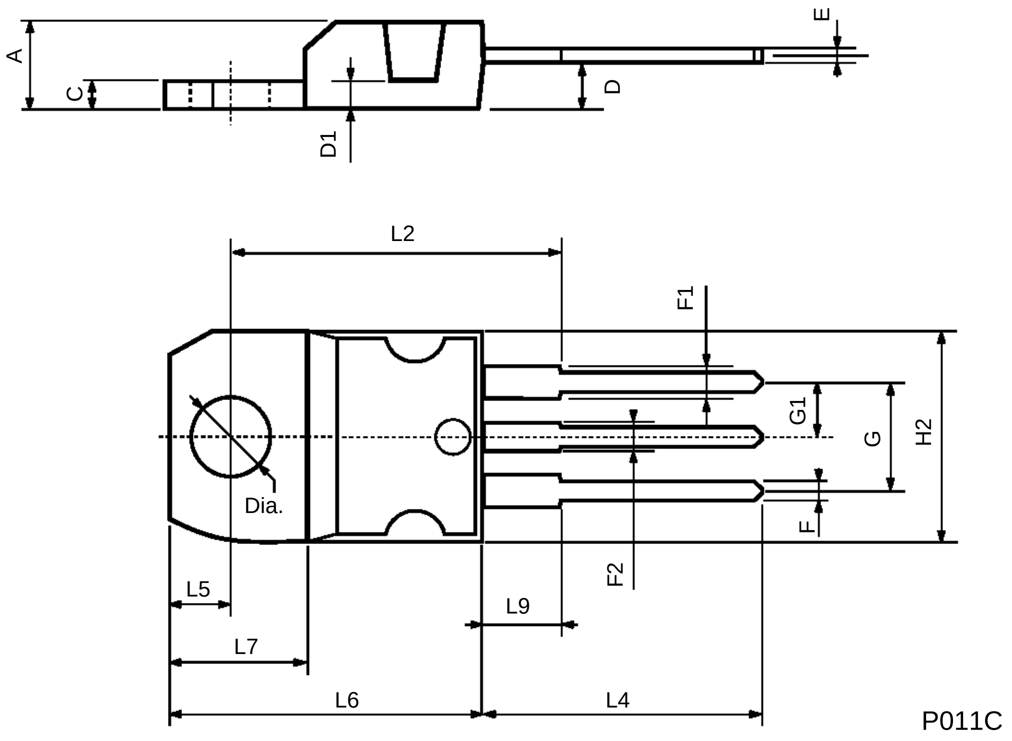
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^{o}C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current (V_{BE} = -1.5V)	V_{CE} = rated V_{CEO} V_{CE} = rated V_{CEO} T_c = 125 ^{o}C			0.3 3	mA mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	for **2N6387** V_{CE} = 60 V for **2N6388** V_{CE} = 80 V			1 1	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			5	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 200 mA for **2N6387** for **2N6388**	 60 80			 V V
$V_{CER(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 200 mA R_{BE} = 100 Ω for **2N6387** for **2N6388**	 60 80			 V V
$V_{CEV(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 200 mA V_{BE} = -1.5V for **2N6387** for **2N6388**	 60 80			 V V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 5 A I_B = 10 mA I_C = 10 A I_B = 100 mA			2 3	V V
V_{BE}*	Base-Emitter Voltage	I_C = 5 A V_{CE} = 3 V I_C = 10 A V_{CE} = 3 V			2.8 4.5	V V
h_{FE}*	DC Current Gain	I_C = 5 A V_{CE} = 3 V I_C = 10 A V_{CE} = 3 V	1000 100		20000	
h_{fe}	Small Signal Current Gain	I_C = 1 A V_{CE} = 10 V f = 1MHz I_C = 1 A V_{CE} = 10 V f = 1KHz	20 1000			
V_F*	Parallel-diode Forward Voltage	I_F = 10 A			4	V
C_{CBO}	Collector Base Capacitance	I_E = 0 V_{CB} = 10 V f = 1MHz			200	pF
$I_{s/b}$**	Second Breakdown Collector Current	V_{CE} = 25 V	2.6			A
$E_{s/b}$	Second Breakdown Energy	L = 12 mH R_{BE} = 100 Ω V_{BE} = -1.5 V I_C = 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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