

## COMPLEMENTARY SILICON POWER TRANSISTORS

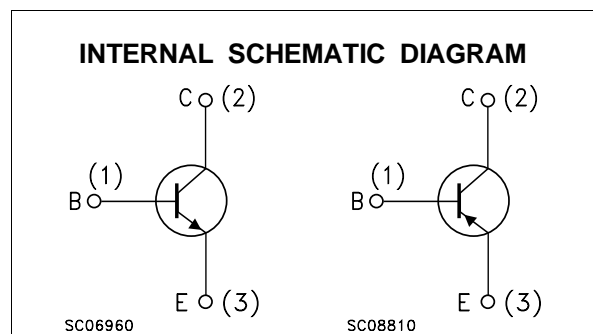
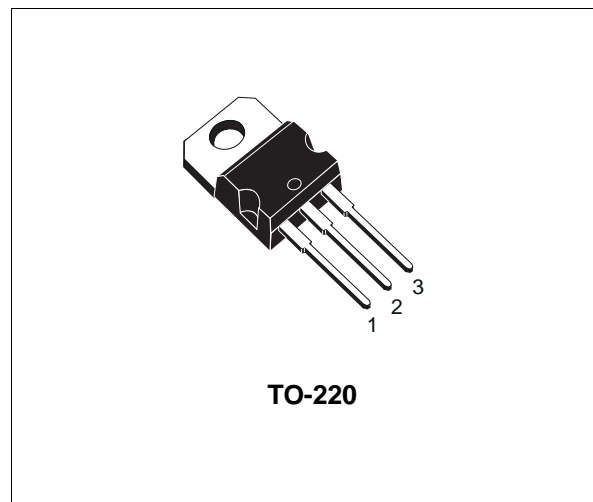
- SGS-THOMSON PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES

### DESCRIPTION

The 2N6487 and 2N6488 are silicon epitaxial-base NPN transistors mounted in Jedec TO-220 plastic package.

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

The complementary PNP types are 2N6489 and 2N6490 respectively.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		NPN	2N6487	2N6488	
		PNP	2N6489	2N6490	
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	50	70	90	V
$V_{CEX}$	Collector-Emitter Voltage ( $V_{BE} = -1.5V, R_{BE} = 100\Omega$ )	50	70	90	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	40	60	80	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	5			V
$I_C$	Collector Current	15			A
$I_B$	Base Current	5			A
$P_{tot}$	Total Dissipation at $T_c \leq 25^\circ C$	75			W
$T_{stg}$	Storage Temperature	-65 to 150			$^\circ C$
$T_j$	Max. Operating Junction Temperature	150			$^\circ C$

For PNP types voltage and current values are negative.

## 2N6487 / 2N6488 / 2N6489 / 2N6490

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	1.67	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	70	°C/W

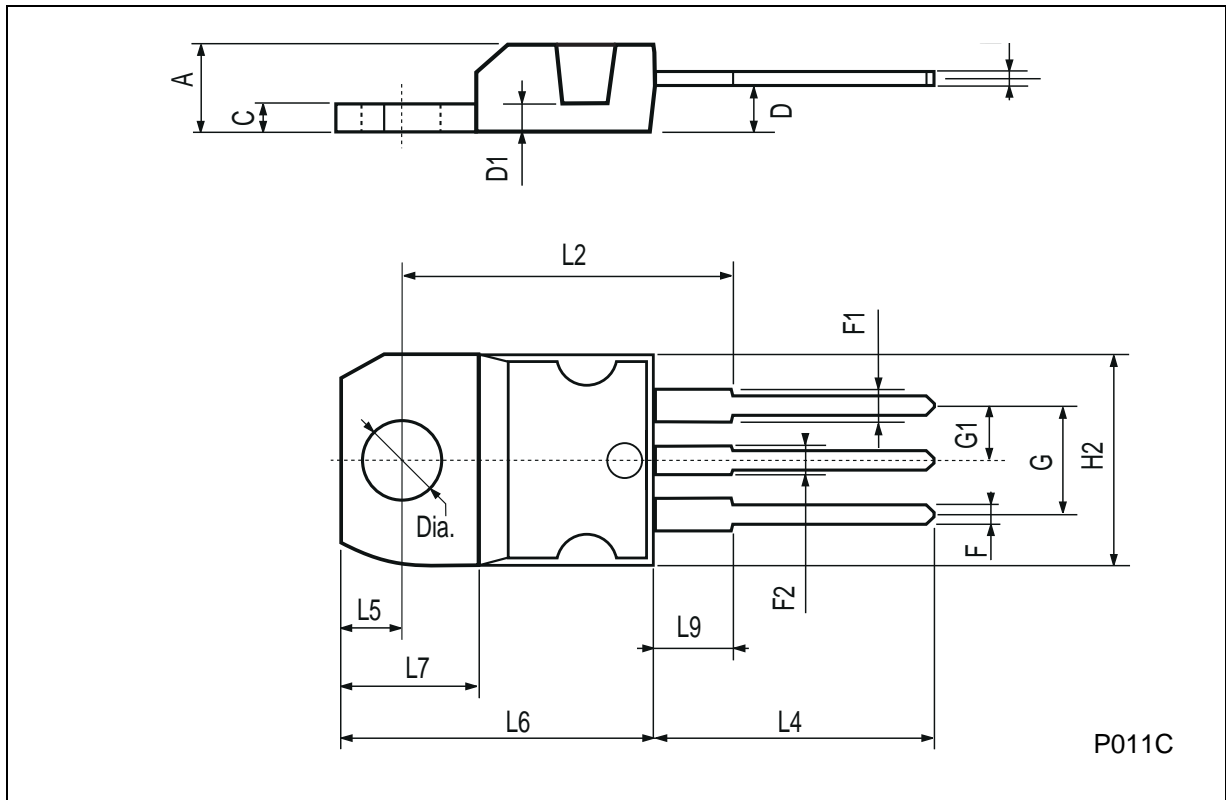
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
I <sub>CEX</sub>	Collector Cut-off Current (V <sub>BE</sub> = -1.5V)	for <b>2N6489</b> V <sub>CE</sub> = 45 V			0.5	mA	
		for <b>2N6487/2N6490</b> V <sub>CE</sub> = 65 V			0.5	mA	
		for <b>2N6488</b> V <sub>CE</sub> = 85 V			0.5	mA	
		T <sub>C</sub> = 150 °C					
		for <b>2N6489</b> V <sub>CE</sub> = 40 V			5	mA	
		for <b>2N6487/2N6490</b> V <sub>CE</sub> = 60 V			5	mA	
		for <b>2N6488</b> V <sub>CE</sub> = 80 V			5	mA	
I <sub>CER</sub>	Collector Cut-off Current (R <sub>BE</sub> = 100Ω)	for <b>2N6489</b> V <sub>CE</sub> = 35 V			0.5	mA	
		for <b>2N6487/2N6490</b> V <sub>CE</sub> = 55 V			0.5	mA	
		for <b>2N6488</b> V <sub>CE</sub> = 75 V			0.5	mA	
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	for <b>2N6489</b> V <sub>CE</sub> = 20 V			1	mA	
		for <b>2N6487/2N6490</b> V <sub>CE</sub> = 30 V			1	mA	
		for <b>2N6488</b> V <sub>CE</sub> = 40 V			1	mA	
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			1	mA	
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 200 mA					
		for <b>2N6489</b>	40			V	
		for <b>2N6487/2N6490</b>	60			V	
		for <b>2N6488</b>	80			V	
V <sub>CER(sus)*</sub>	Collector-Emitter Sustaining Voltage (R <sub>BE</sub> = 100Ω)	I <sub>C</sub> = 200 mA					
		for <b>2N6489</b>	45			V	
		for <b>2N6487/2N6490</b>	65			V	
		for <b>2N6488</b>	85			V	
V <sub>CEX(sus)*</sub>	Collector-Emitter Sustaining Voltage (V <sub>BE</sub> = -1.5V, R <sub>BE</sub> = 100Ω)	I <sub>C</sub> = 200 mA					
		for <b>2N6489</b>	50			V	
		for <b>2N6487/2N6490</b>	70			V	
		for <b>2N6488</b>	90			V	
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5 A I <sub>B</sub> = 0.5 A			1.3	V	
		I <sub>C</sub> = 15 A I <sub>B</sub> = 5 A			3.5	V	
V <sub>BE*</sub>	Base-Emitter Voltage	I <sub>C</sub> = 5 A V <sub>CE</sub> = 4 V			1.3	V	
		I <sub>C</sub> = 15 A V <sub>CE</sub> = 4 V			3.5	V	
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 5 A V <sub>CE</sub> = 4 V	20		150		
		I <sub>C</sub> = 15 A V <sub>CE</sub> = 4 V	5				
h <sub>fe</sub>	Small Signal Current Gain	I <sub>C</sub> = 1 A V <sub>CE</sub> = 4 V f = 1MHz	5				
		I <sub>C</sub> = 1 A V <sub>CE</sub> = 4 V f = 1KHz	25				

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %  
For PNP types voltage and current values are negative.

**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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