SGS-THOMSON MICROELECTRONICS

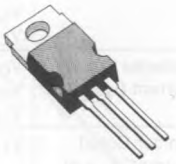
2N6107/09/11
2N6288/90/92

GENERAL PURPOSE COMPLEMENTARY PAIRS

DESCRIPTION

The 2N6107, 2N6109, 2N6111, 2N6288, 2N6290 and 2N6292 are epitaxial-base silicon transistors in Jedec TO-220 plastic package. They are intended for a wide variety of medium power switching and linear applications.

The PNP types are the 2N6107, 2N6109, 2N6111 and their complementary NPN types are the 2N6292, 2N6290 and 2N6288 respectively.



TO-220

INTERNAL SCHEMATIC DIAGRAMS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	PNP / NPN	2N6107 / 2N6292	2N6109 / 2N6290	2N6111 / 2N6288	Unit
V_{CBO}	Collector-base Voltage (I_E = 0)		80	60	40	V
V_{CEX}	Collector-emitter Voltage (R_{BE} = 100 Ω)		80	60	40	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)		70	50	30	V
V_{EBO}	Emitter-base Voltage (I_C = 0)		5			V
I_C	Collector Current		7			A
I_B	Base Current		3			A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25$ °C		40			W
T_{stg}	Storage Temperature		– 65 to 150			°C
T_j	Junction Temperature		150			°C

For PNP devices voltage and current values are negative.

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	3.12	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	70	°C/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Collector Cutoff Current (V_{BE} = − 1.5 V)	V_{CE} = 40V for **2N6111/2N6288**			0.1	mA
		V_{CE} = 60V for **2N6109/2N6290**			0.1	mA
		V_{CE} = 80V for **2N6107/2N6292**			0.1	mA
		T_c = 150°C				
		V_{CE} = 30V for **2N6111/2N6288**			2	mA
		V_{CE} = 50V for **2N6109/2N6290**			2	mA
		V_{CE} = 70V for **2N6107/2N6292**			2	mA
I_{CEO}	Collector Cutoff Current (I_B = 0)	V_{CE} = 20V for **2N6111/2N6288**			1	mA
		V_{CE} = 40V for **2N6109/2N6290**			1	mA
		V_{CE} = 60V for **2N6107/2N6292**			1	mA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector Emitter Sustaining Voltage	I_C = 0.1 A for **2N6111/2N6288**	30			V
		for **2N6109/2N6290**	50			V
		for **2N6107/2N6292**	70			V
$V_{CER(sus)}$*	Collector Emitter Sustaining Voltage	I_C = 0.1 A R_{BE} = 100 ohm				
		for **2N6111/2N6288**	40			V
		for **2N6109/2N6290**	60			V
		for **2N6107/2N6292**	80			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 2 A I_B = 0.2 A for **2N6111/2N6288**			1	V
		I_C = 2.5 A I_B = 0.25 A for **2N6109/2N6290**			1	V
		I_C = 3 A I_B = 0.3 A for **2N6107/2N6292**			1	V
		I_C = 7 A I_B = 3 A			3.5	V
$V_{BE(on)}$*	Base-emitter Voltage	I_C = 2 A V_{CE} = 4 A for **2N6111/2N6288**			1.5	V
		I_C = 2.5 A V_{CE} = 4 A for **2N6109/2N6290**			1.5	V
		I_C = 3 A V_{CE} = 4 A for **2N6107/2N6292**			1.5	V
		I_C = 7 A V_{CE} = 4 A			3	V
h_{FE}*	DC Current Gain	I_C = 2 A V_{CE} = 4 A for **2N6111/2N6288**	30		150	
		I_C = 2.5 A V_{CE} = 4 A for **2N6109/2N6290**	30		150	
		I_C = 3 A V_{CE} = 4 A for **2N6107/2N6292**	30		150	
		I_C = 7 A V_{CE} = 4 A	2.3			
h_{fe}	Small Signal Current Gain	I_C = 0.5 A V_{CE} = 4 V f = 50 KHz	20			
f_T	Transition Frequency	I_C = 0.5 A V_{CE} = 4 V for **NPN** Types	10			MHz
		I_C = 0.5 A V_{CE} = 4 V for **PNP** Types	4			MHz
C_{cbo}	Collector-base Capacitance	V_{CB} = 10 V f = 1 MHz			250	pF

* Pulsed : pulse duration = 300µs, duty cycle = 1.5 %.
For PNP types voltage and current values are negative.
For characteristic curves see the BD533 (NPN) and BD534 (PNP) series.