SGS-THOMSON MICROELECTRONICS

2N6486/87/88
2N6489/90/91

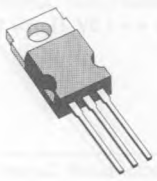
POWER LINEAR AND SWITCHING APPLICATIONS

DESCRIPTION

The 2N6486, 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 switching applications.

The complementary PNP types are the 2N6489, 2N6490 and 2N6491 respectively.



TO-220

INTERNAL SCHEMATIC DIAGRAMS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN PNP*	2N6486 2N6489	2N6487 2N6490	2N6488 2N6491	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)		50	70	90	V
V_{CEX}	Collector-base Voltage ($V_{BE} = 1.5V$; $R_{BE} = 100\Omega$)		50	70	90	V
V_{CEO}	Collector-base 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 Power Dissipation at $T_{case} \leq 25°C$ $T_{case} \leq 25°C$		75 1.8			W W
T_{stg}	Storage Temperature		– 65 to 150			°C
T_j	Junction Temperature		150			°C

* For NPN types voltage and current values are negative.

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	1.67	°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_{CEO}	Collector-cutoff Current (I_B = 0)	for **2N6486/89** V_{CE} = 20V			1	mA
		for **2N6487/90** V_{CE} = 30V			1	mA
		for **2N6488/91** V_{CE} = 40V			1	mA
I_{CEX}	Collector-cutoff Current (V_{BE} = − 1.5V, R_{BE} = 100 Ω)	for **2N6486/89** V_{CE} = 45V			0.5	mA
		for **2N6487/90** V_{CE} = 65V			0.5	mA
		for **2N6488/91** V_{CE} = 85V			0.5	mA
		T_{case} = 150°C				
		for **2N6486/89** V_{CE} = 40V			5	mA
		for **2N6487/90** V_{CE} = 60V			5	mA
		for **2N6488/91** V_{CE} = 80V			5	mA
I_{CER}	Collector-cutoff Current (R_{BE} = 100Ω)	for **2N6486/89** V_{CE} = 35V			0.5	mA
		for **2N6487/90** V_{CE} = 55V			0.5	mA
		for **2N6488/91** V_{CE} = 75V			0.5	mA
I_{EBO}	Emitter-cutoff Current (I_C = 0)	V_{EB} = 5V			1	mA
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = 200mA				
		for **2N6486/89**	40			V
		for **2N6487/90**	60			V
		for **2N6488/91**	80			V
$V_{CER(sus)}$*	Collector-emitter Sustaining Voltage (R_{BE} = 100Ω)	I_C = 200mA				
		for **2N6486/89**	45			V
		for **2N6487/90**	65			V
		for **2N6488/91**	85			V
$V_{CEX(sus)}$*	Collector-emitter Sustaining Voltage (V_{BE} = − 1.5V, R_{BE} = 100Ω)	I_C = 200mA				
		for **2N6486/89**	50			V
		for **2N6487/90**	70			V
		for **2N6488/91**	90			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 5A I_B = 0.5A			1.3	V
		I_C = 15A I_B = 5A			3.5	V
V_{BE}*	Base-emitter Voltage	I_C = 5A V_{CE} = 4V			1.3	V
		I_C = 15A V_{CE} = 4V			3.5	V
h_{FE}*	DC Current Gain	I_C = 5A V_{CE} = 4V	20		150	
		I_C = 15A V_{CE} = 4V	5			
h_{fe}	Small Signal Current Gain	I_C = 1A V_{CE} = 4V				
		f = 1MHz	5			
		I_C = 1A V_{CE} = 4V				
		f = 1KHz	25			

* Pulsed : pulse duration = 300µs, duty cycle ≤ 2%.
For PNP types voltage and current values are negative.