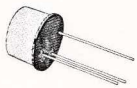
SGS-THOMSON
MICROELECTRONICS

2N718A
2N956

AMPLIFIERS AND SWITCHES

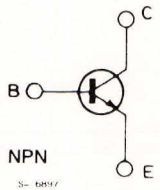
DESCRIPTION

The 2N718A and 2N956 are silicon planar epitaxial NPN transistors in Jedec TO-18 metal case, intended for high-speed switching and amplifier applications.



TO-18

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage (I_E = 0)	75	V
V_{CER}	Collector–emitter Voltage ($R_{BE} \leq 10\ \Omega$)	50	V
V_{EBO}	Emitter–base Voltage (I_C = 0)	7	V
I_C	Collector Current	1	A
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25$ °C at $T_{case} \leq 25$ °C	0.5 1.8	W W
T_{stg}, T_j	Storage and Junction Temperature	– 65 to 200	°C

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	97	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	350	°C/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = 60 V V_{CB} = 60 V T_{amb} = 150 °C			10 10	nA µA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 5 V for **2N718A** for **2N956**			10 5	nA nA
$V_{(BR)CBO}$	Collector–base Breakdown Voltage (I_E = 0)	I_C = 100 µA	75			V
$V_{(BR)CER}$*	Collector–emitter Breakdown Voltage ($R_{BE} \leq 10\ \Omega$)	I_C = 10 mA	50			V
$V_{(BR)EBO}$	Emitter–base Breakdown Voltage (I_C = 0)	I_E = 100 µA	7			V
$V_{CE(sat)}$*	Collector–emitter Saturation Voltage	I_C = 150 mA I_B = 15 mA		0.24	1.5	V
$V_{BE(sat)}$*	Base–emitter Saturation Voltage	I_C = 150 mA I_B = 15 mA		1	1.3	V
h_{FE}*	DC Current Gain	for **2N718A**				–
		I_C = 0.1 mA V_{CE} = 10 V	20			–
		I_C = 10 mA V_{CE} = 10 V	35			–
		I_C = 150 mA V_{CE} = 10 V	40		120	–
		I_C = 500 mA V_{CE} = 10 V	20			
		I_C = 10 mA V_{CE} = 10 V T_{amb} = – 55 °C	20			–
		for **2N956**				
		I_C = 0.01 mA V_{CE} = 10 V	20			–
		I_C = 0.1 mA V_{CE} = 10 V	35			–

* Pulsed : pulse duration = 300 µs, duty cycle = 1 %.

ELECTRICAL CHARACTERISTICS (continued)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
h_{FE}*	DC Current Gain	for **2N956**					–
		I_C = 10 mA	V_{CE} = 10 V	75			–
		I_C = 150 mA	V_{CE} = 10 V	100		300	–
		I_C = 500 mA	V_{CE} = 10 V	40			
		I_C = 10 mA	V_{CE} = 10 V				
		T_{amb} = – 55 °C		35			–
h_{fe}	Small Signal Current Gain	for **2N718A**					
		I_C = 1 mA	V_{CE} = 5 V	30		150	–
		I_C = 5 mA	V_{CE} = 10 V	35		150	–
		for **2N956**					
		I_C = 1 mA	V_{CE} = 5 V	50		300	–
		I_C = 5 mA	V_{CE} = 10 V	70		300	–
f_T	Transition Frequency	I_C = 50 mA	V_{CE} = 10 V				
		f = 20 MHz					
			for **2N718A**	60			MHz
			for **2N956**	70			MHz
C_{EBO}	Emitter–base Capacitance	I_C = 0	V_{EB} = 0.5 V				
		f = 1 MHz				80	pF
C_{CBO}	Collector–base Capacitance	I_E = 0	V_{CB} = 10 V				
		f = 1 MHz				25	pF
NF	Noise Figure	I_C = 300 µA	V_{CE} = 10 V				
		f = 1 kHz					
			for **2N718A**			12	dB
			for **2N956**			8	dB

* Pulsed : pulse duration = 300 µs, duty cycle = 1 %.