

SMALL SIGNAL NPN TRANSISTOR

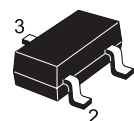
PRELIMINARY DATA

Type	Marking
SO642	N91

- SILICON EPITAXIAL PLANAR NPN HIGH VOLTAGE TRANSISTOR
- MINIATURE SOT-23 PLASTIC PACKAGE FOR SURFACE MOUNTING CIRCUITS
- TAPE AND REEL PACKING
- THE PNP COMPLEMENTARY TYPE IS SO692

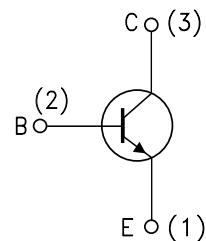
APPLICATIONS

- VIDEO AMPLIFIER CIRCUITS (RGB CATHODE CURRENT CONTROL)
- TELEPHONE WIRELINE INTERFACE (HOOK SWITCHES, DIALER CIRCUITS)



SOT-23

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	300	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	300	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	6	V
I_C	Collector Current	0.1	A
I_{CM}	Collector Peak Current	0.3	A
P_{tot}	Total Dissipation at $T_C = 25^\circ\text{C}$	310	mW
T_{stg}	Storage Temperature	-65 to 150	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	150	$^\circ\text{C}$

THERMAL DATA

R _{thj-amb} •	Thermal Resistance Junction-Ambient	Max	403.2	°C/W
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• Device mounted on a PCB area of 1 cm²

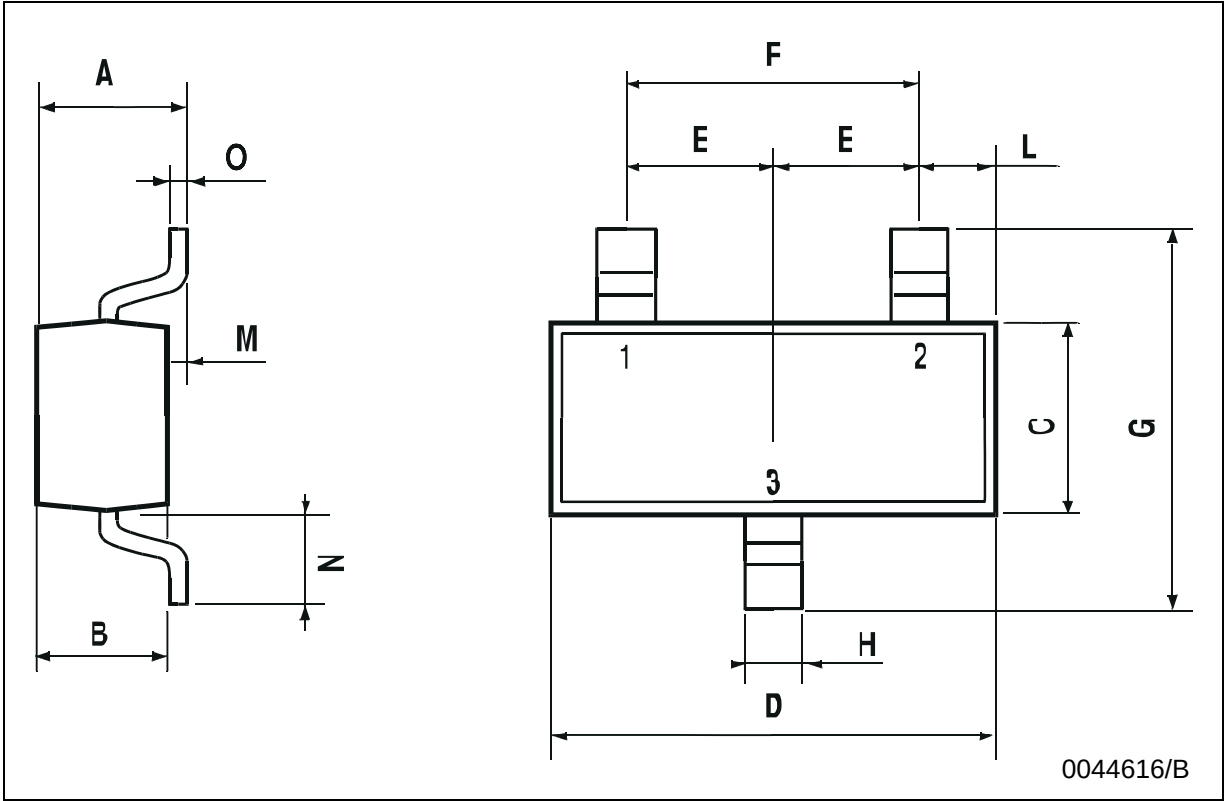
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CBO}	Collector Cut-off Current (I _E = 0)	V _{CB} = 200 V			100	nA
V _{(BR)CBO}	Collector-Emitter Breakdown Voltage (I _E = 0)	I _C = 100 µA	300			V
V _{(BR)CEO} *	Collector-Emitter Breakdown Voltage (I _B = 0)	I _C = 1 mA	300			V
V _{(BR)EBO}	Emitter-Base Breakdown Voltage (I _C = 0)	I _E = 100 µA	6			V
V _{CE(sat)} *	Collector-Emitter Saturation Voltage	I _C = 20 mA I _B = 2 mA			0.5	V
V _{BE(sat)} *	Base-Emitter Saturation Voltage	I _C = 20 mA I _B = 2 mA			0.9	V
h _{FE} *	DC Current Gain	I _C = 1 mA V _{CE} = 10 V I _C = 10 mA V _{CE} = 10 V I _C = 30 mA V _{CE} = 10 V	25 40 40			
f _T	Transition Frequency	I _C = 10 mA V _{CE} = 20 V f = 20 MHz	50			MHz
C _{CBO}	Collector-Base Capacitance	I _E = 0 V _{CB} = 10 V f = 1MHz		6		pF
C _{EBO}	Emitter-Base Capacitance	I _C = 0 V _{EB} = 2 V f = 1MHz		22		pF

* Pulsed: Pulse duration = 300 µs, duty cycle ≤ 2 %

SOT-23 MECHANICAL DATA

DIM.	mm			mils		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	0.85		1.1	33.4		43.3
B	0.65		0.95	25.6		37.4
C	1.20		1.4	47.2		55.1
D	2.80		3	110.2		118
E	0.95		1.05	37.4		41.3
F	1.9		2.05	74.8		80.7
G	2.1		2.5	82.6		98.4
H	0.38		0.48	14.9		18.8
L	0.3		0.6	11.8		23.6
M	0		0.1	0		3.9
N	0.3		0.65	11.8		25.6
O	0.09		0.17	3.5		6.7



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