T-29-21

SILICON SMALL-SIGNAL TRANSISTORS

NPN small-signal transistors, each in a TO-92 envelope.

They are intended for use in audio amplifier driver stages and other general purpose applications.

PNP complementary types are 2PA1015 and 2PA1015L.

QUICK REFERENCE DATA

Collector-base voltage (open emitter)	V_{CBO}	max.	60 V
Collector-emitter voltage (open base)	V_{CEO}	max.	50 V
Collector current (DC)	I_C	max.	150 mA
Total power dissipation at $T_{amb} \leqslant 25$ °C	P_{tot}	max.	500 mW
Collector-emitter saturation voltage I_C = 100 mA; I_B = 10 mA	V_{CEsat}	max.	0.3 V
DC current gain I_C = 2 mA; V_{CE} = 6 V	h_{FE}	min. max.	120 700

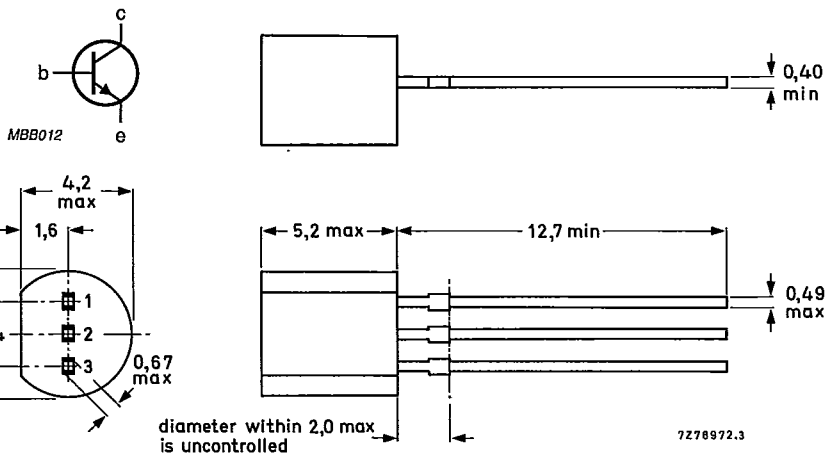
MECHANICAL DATA

Dimensions in mm

Fig.1 TO-92

Pinning

1 = base
2 = collector
3 = emitter



Capability approved to CECC NECC-C-002

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RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Collector-base voltage (open emitter)	V_{CBO}	max.	60	V
Collector-emitter voltage (open base)	V_{CEO}	max.	50	V
Emitter-base voltage (open collector)	V_{EBO}	max.	5.0	V
Collector current (DC)	I_C	max.	150	mA
Base current (DC)	I_B	max.	50	mA
Total power dissipation at $T_{amb} \leqslant 25$ °C	P_{tot}	max.	500	mW
Junction temperature	T_j	max.	150	°C
Storage temperature range	T_{stg}		−65 to + 150	°C

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th\ j\text{-}a}$	=	250	K/W

CHARACTERISTICS

T_j = 25 °C unless otherwise specified

Collector cut-off current I_E = 0; V_{CB} = 60 V		I_{CBO}	max.	100	nA
Emitter cut-off current I_C = 0; V_{EB} = 5 V		I_{EBO}	max.	100	nA
DC current gain I_C = 150 mA; V_{CE} = 6 V		h_{FE}	min.	25	
I_C = 2 mA; V_{CE} = 6 V *		h_{FE}	min. max.	120 700	
Collector-emitter saturation voltage I_C = 100 mA; I_B = 10 mA		V_{CEsat}	max.	0.3	V
Base-emitter saturation voltage I_C = 100 mA; I_B = 10 mA		V_{BEsat}	max.	1.1	V
Transition frequency I_C = 1 mA; V_{CE} = 6 V		f_T	min.	80	MHz
Collector-output capacitance I_E = 0; V_{CB} = 10 V; f = 1 MHz		C_{ob}	max. typ.	3.5 2.5	pF pF
Noise figure I_C = 100 μA; V_{CE} = 6 V; R_s = 10 kΩ; f = 1 kHz	2PC1815	F	max. typ.	10 1	dB dB
	2PC1815L	F	max. typ.	3 0.2	dB dB

* Classification of h_{FE}

Group	Y	GR	BL
Range	120 – 240	200 – 400	350 – 700