

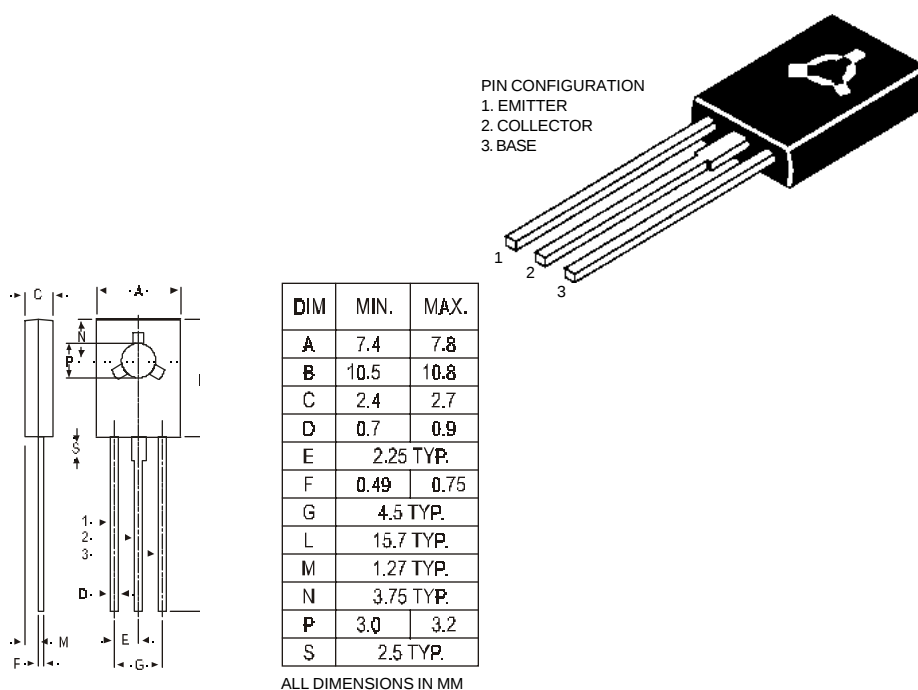
TO-126 (SOT-32) Plastic Package

C42C2

C42C2 NPN PLASTIC POWER TRANSISTOR

Complementary C43C series

General Purpose Applications



ABSOLUTE MAXIMUM RATINGS

Collector-emitter voltage ($V_{BE}=0$)
Collector-emitter voltage (open base)
Collector current
Total power dissipation up to $T_C = 25^\circ\text{C}$
Junction temperature
Collector-emitter saturation voltage
 $I_C = 1\text{ A}$; $I_B = 50\text{ mA}$
D.C. current gain
 $I_C = 200\text{ mA}$; $V_{CE} = 1\text{ V}$

V_{CES}	max.	40 V
V_{CEO}	max.	30 V
I_C	max.	3 A
P_{tot}	max.	12.5 W
T_j	max.	150 °C
V_{CEsat}	max.	0.5 V
h_{FE}	min.	100
	max.	220

RATINGS (at $T_A=25^\circ\text{C}$ unless otherwise specified)

Limiting values

Collector-emitter voltage ($V_{BE}=0$)
Collector-emitter voltage (open base)
Emitter-base voltage (open collector)
Collector current (DC)

V_{CES}	max.	40 V
V_{CEO}	max.	30 V
V_{EBO}	max.	5.0 V
I_C	max.	3.0 A

C42C2

Collector current (Peak)*	I_{CM}	max.	5 A
Base current	I_B	max.	2 A
Total power dissipation up to $T_A = 25^\circ\text{C}$	P_{tot}	max.	2.1 W
Total power dissipation up to $T_C = 25^\circ\text{C}$	P_{tot}	max.	12.5 W
Junction temperature	T_j	max.	150 °C
Storage temperature	T_{stg}	-65 to +150 °C	

THERMAL RESISTANCE

From junction to case	$R_{th\ j-c}$	=	10 °C/W
From junction to ambient	$R_{th\ j-a}$	=	60 °C/W

CHARACTERISTICS

$T_C = 25^\circ\text{C}$ unless otherwise specified

Collector cutoff current $V_{BE} = 0$; $V_{CE} = \text{Rated } V_{CES}$	I_{CES}	max.	10 μA
Emitter cut-off current $I_C = 0$; $V_{EB} = 5\text{ V}$	I_{EBO}	max.	100 μA
Breakdown sus. voltages $I_C = 100\text{ mA}$; $I_B = 0$	$V_{CEO(sus)}^*$	min.	30 V
Saturation voltages $I_C = 1\text{ A}$; $I_B = 50\text{ mA}$	V_{CESat}^*	max.	0.5 V
$I_C = 1\text{ A}$; $I_B = 100\text{ mA}$	V_{BESat}^*	max.	1.3 V
D.C. current gain $I_C = 200\text{ mA}$; $V_{CE} = 1\text{ V}$	h_{FE}^*	min.	100
		max.	220
$I_C = 2\text{ A}$; $V_{CE} = 1\text{ V}$	h_{FE}^*	min.	20
Transition frequency $I_C = 20\text{ mA}$; $V_{CE} = 4\text{ V}$	f_T	typ.	50 MHz
Collector capacitance $V_{CB} = 10\text{ V}$; $I_E = 0$; $f = 1\text{ MHz}$	C_{cbo}	max.	100 pF

Switching time

Delay time + Rise time $I_C = 1\text{ A}$; $I_{B1} = I_{B2} = 0.1\text{ A}$	$t_d + t_r$	typ.	100 ns
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Storage time + Fall time

$V_{CC} = 30\text{ V}$; $t_p = 25\text{ }\mu\text{sec}$	t_s	typ.	500 ns
	t_f	typ.	75 ns

* Pulsed test: $P_W = 300\text{ ms}$; duty cycle = 2%.

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Continental Device India Limited

C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-579 6150 Fax + 91-11-579 9569, 579 5290
e-mail sales@cdil.com www.cdil.com