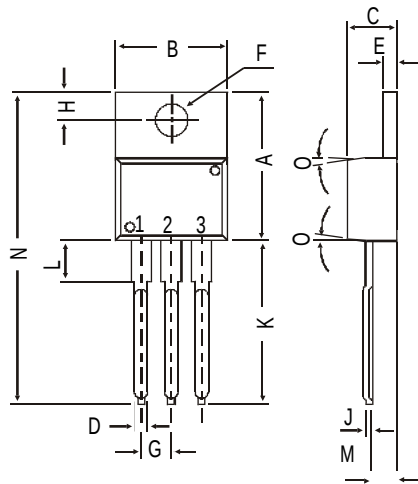
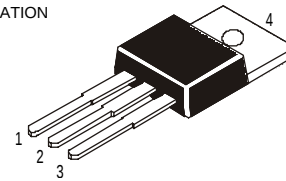


TO-220 Plastic Package
CSC3039
CSC3039 NPN PLASTIC POWER TRANSISTOR

Switching Regulator Applications

PIN CONFIGURATION

1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR



DIM	MIN.	MAX.
A	14.42	16.51
B	9.63	10.67
C	3.56	4.83
D		0.90
E	1.15	1.40
F	3.75	3.88
G	2.29	2.79
H	2.54	3.43
J		0.56
K	12.70	14.73
L	2.80	4.07
M	2.03	2.92
N		31.24
O	DEG 7	

All dimensions in mm.

ABSOLUTE MAXIMUM RATINGS

Collector-base voltage (open emitter)

Collector-emitter voltage (open base)

Collector current

 Total power dissipation up to $T_C = 25^\circ\text{C}$

Junction temperature

Collector-emitter saturation voltage

 $I_C = 4\text{A}; I_B = 0.8\text{A}$

D.C. current gain

 $I_C = 0.8\text{A}; V_{CE} = 5\text{V}$
 V_{CBO} max. 500 V

 V_{CEO} max. 400 V

 I_C max. 7.0 A

 P_{tot} max. 50 W

 T_j max. 150 °C

 V_{CEsat} max. 1.0 V

 h_{FE} min 15

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

Limiting values

Collector-base voltage (open emitter)

Collector-emitter voltage (open base)

Emitter-base voltage (open collector)

Collector current

Collector current (Peak)

Base current

 V_{CBO} max. 500 V

 V_{CEO} max. 400 V

 V_{EBO} max. 7.0 V

 I_C max. 7.0 A

 I_{CP} max. 14 A

 I_B max. 3 A

CSC3039

Total power dissipation up to $T_C = 25^\circ\text{C}$
 Total power dissipation up to $T_A = 25^\circ\text{C}$
 Junction temperature
 Storage temperature

P_{tot}	max.	50 W
P_{tot}	max.	1.75 W
T_j	max.	150 °C
T_{stg}		-65 to +150 °C

CHARACTERISTICS

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

Collector cutoff current

$I_E = 0$; $V_{CB} = 400\text{V}$

I_{CBO}	max.	10 μA
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Emitter cut-off current

$I_C = 0$; $V_{EB} = 5\text{V}$

I_{EBO}	max.	10 μA
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Breakdown voltages

$I_C = 5\text{ mA}$; $I_B = 0$

$V_{CEO(sus)}^*$	min.	400 V
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$I_C = 1\text{ mA}$; $I_E = 0$

V_{CBO}	min.	500 V
-----------	------	-------

$I_E = 1\text{ mA}$; $I_C = 0$

V_{EBO}	min.	7.0 V
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Saturation voltages

$I_C = 4\text{ A}$; $I_B = 0.8\text{ A}$

V_{CEsat}^*	max.	1.0 V
---------------	------	-------

V_{BEsat}^*	max.	1.5 V
---------------	------	-------

D.C. current gain

$I_C = 0.8\text{A}$; $V_{CE} = 5\text{V}$

h_{FE}^*	min.	15
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$I_C = 4\text{A}$; $V_{CE} = 5\text{V}$

h_{FE}^*	min.	8
------------	------	---

Transition frequency

$I_C = 0.8\text{A}$; $V_{CE} = 10\text{V}$

f_T	typ.	20 MHz
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Output capacitance $f = 1\text{ MHz}$

$I_E = 0$; $V_{CB} = 10\text{V}$

C_o	typ.	80 pF
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Switching time

$I_C = 5\text{A}$; $I_{B1} = I_{B2} = -1\text{A}$

$R_L = 40\Omega$; $V_{CC} = 200\text{V}$

Turn on time

t_{on}	max.	1.0 μs
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Storage time

t_{stg}	max.	2.5 μs
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Fall time

t_f	max	1.0 μs
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* Pulse test: pulse width $\leq 300\text{ }\mu\text{s}$; duty cycle $\leq 2\%$.

(1) PW $\leq 300\text{ }\mu\text{s}$; duty cycle $\leq 10\%$.

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