

Silicon NPN Power Transistors

2SC3039

DESCRIPTION

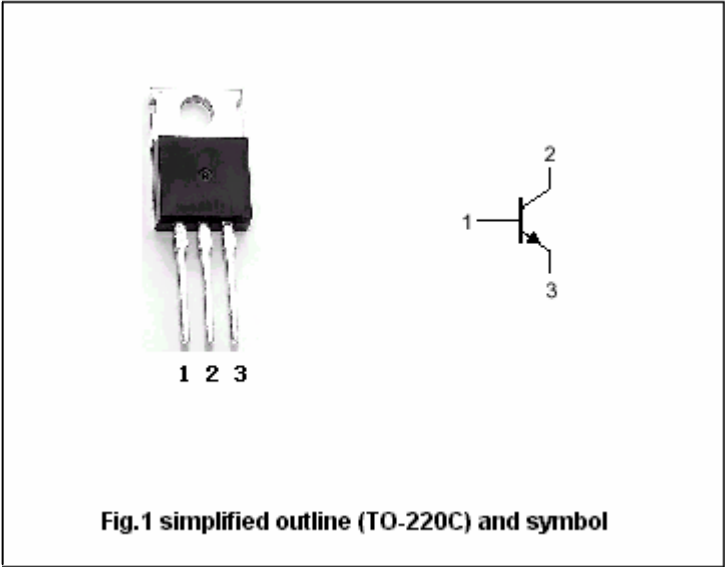
- With TO-220C package
- High breakdown voltage ($V_{CBO} \geq 500V$).
- Fast switching speed.
- Wide area of safe operation

APPLICATIONS

- 400V/7A switching regulator applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector;connected to mounting base
3	Emitter



Absolute maximum ratings($T_a=25^{\circ}C$)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	500	V
V_{CEO}	Collector-emitter voltage	Open base	400	V
V_{EBO}	Emitter-base voltage	Open collector	7	V
I_C	Collector current (DC)		7	A
I_{CM}	Collector current-peak		14	A
I_B	Base current		3	A
P_C	Collector dissipation	$T_a=25^{\circ}C$	1.75	W
		$T_C=25^{\circ}C$	50	
T_j	Junction temperature		150	$^{\circ}C$
T_{stg}	Storage temperature		-50~150	$^{\circ}C$

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CHARACTERISTICS

Tj=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=5mA ; R_{BE}=\infty$	400			V
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C=1mA ; I_E=0$	500			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=1mA ; I_C=0$	7			V
V_{CEsat}	Collector-emitter saturation voltage	$I_C=4A ; I_B=0.8A$			1.0	V
V_{BEsat}	Base-emitter saturation voltage	$I_C=4A ; I_B=0.8A$			1.5	V
I_{CBO}	Collector cut-off current	$V_{CB}=400V ; I_E=0$			10	μA
I_{EBO}	Emitter cut-off current	$V_{EB}=5V ; I_C=0$			10	μA
h_{FE-1}	DC current gain	$I_C=0.8A ; V_{CE}=5V$	15		50	
h_{FE-2}	DC current gain	$I_C=4A ; V_{CE}=5V$	8			
f_T	Transition frequency	$I_C=0.8A ; V_{CE}=10V$		20		MHz
C_{ob}	Collector output capacitance	$f=1MHz ; V_{CB}=10V$		80		pF

Switching times

t_{on}	Turn-on time	$I_C=5A, I_{B1}=1A$ $I_{B2}=-1A ; V_{CC}=200V$ $R_L=40\Omega$			1.0	μs
t_s	Storage time				2.5	μs
t_f	Fall time				1.0	μs

◆ h_{FE-1} classifications

L	M	N
15-30	20-40	30-50

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PACKAGE OUTLINE

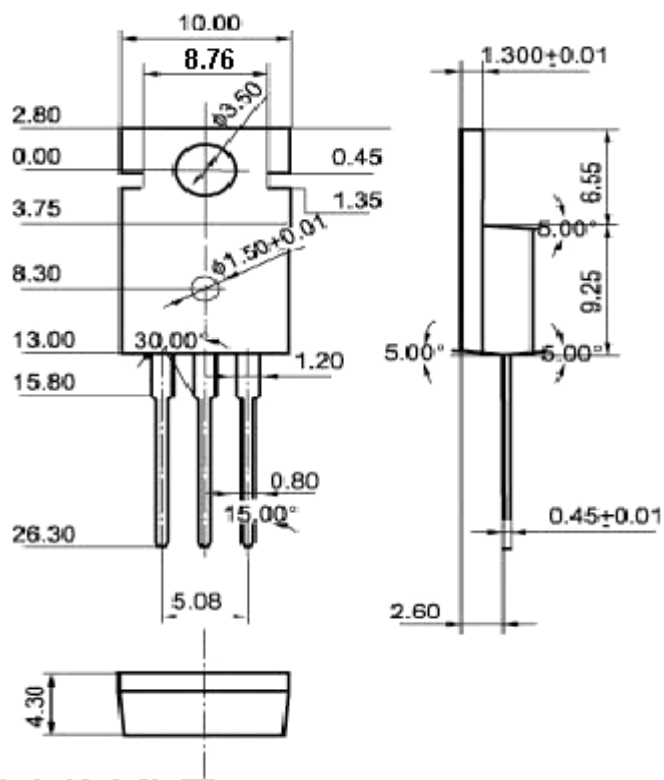


Fig.2 Outline dimensions (unindicated tolerance:±0.10 mm)

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