

BUS50

SWITCHMODE Series
NPN Silicon Power Transistors

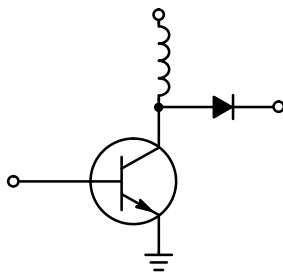
The BUS50 transistor is designed for low voltage, high-speed, power switching in inductive circuits where fall time is critical. It is particularly suited for battery switchmode applications such as:

- Switching Regulators
- Inverters
- Solenoid and Relay Drivers
- Motor Controls

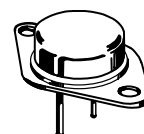
Fast Turn-Off Times

300 ns Inductive Fall Time -25°C (Typ)

Operating Temperature Range -65 to +200°C



70 AMPERES
NPN SILICON
POWER TRANSISTOR
125 VOLTS (BVCEO)
350 WATTS
200 V (BVCEV)



CASE 197A-05
TO-204AE

MAXIMUM RATINGS

Rating	Symbol	BUS50	Unit
Collector-Emitter Voltage	$V_{CEO(sus)}$	125	Vdc
Collector-Emitter Voltage	V_{CEV}	200	Vdc
Emitter Base Voltage	V_{EB}	7	Vdc
Collector Current — Continuous	I_C	70	Adc
— Peak (1)	I_{CM}	140	
— Overload	I_{ol}		
Base Current — Continuous	I_B	20	Adc
— Peak (1)	I_{BM}		
Total Power Dissipation — $T_C = 25^\circ C$	P_D	350	Watts
— $T_C = 100^\circ C$		200	
Derate above 25°C		2	W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.5	°C/W
Maximum Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	T_L	275	°C

(1) Pulse Test: Pulse Width = 5 ms, Duty Cycle \leq 10%.

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REV 7

BUS50

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS¹				
Collector–Emitter Sustaining Voltage (I _C = 200 mA, I _B = 0, L = 25 mH)	V _{CEO(sus)}	125		Vdc
Collector Cutoff Current at Reverse Bias (V _{CE} = 200 V, V _{BE} = -1.5 V) (V _{CE} = 200 V, V _{BE} = -1.5 V, T _C = 125°C)	I _{CEX}		0.2 2	mAdc
Collector–Emitter Cutoff Current (V _{CE} = 125 V)	I _{CEO}		1	mAdc
Emitter Cutoff Current (V _{EB} = 7 V)	I _{EBO}		0.2	mAdc

ON CHARACTERISTICS¹

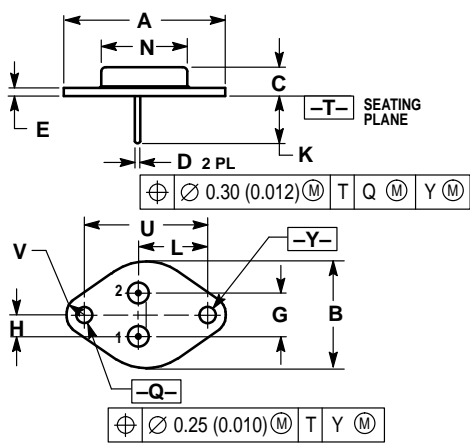
DC Current Gain (I _C = 5 A, V _{CE} = 4 V) (I _C = 50 A, V _{CE} = 4 V)	h _{FE}	20 15		
Collector–Emitter Saturation Voltage (I _C = 35 A, I _B = 2 A) (I _C = 70 A, I _B = 7 A)	V _{CE(sat)}		1 1.2	Vdc
Base–Emitter Saturation Voltage (I _C = 35 A, I _B = 2 A) (I _C = 70 A, I _B = 7 A)	V _{BE(sat)}		1.8 2	Vdc

SWITCHING CHARACTERISTICS (Resistive Load) t_{on} and (Inductive Load) t_{sv}, t_{fi}

Turn–On Time	I _C = 70 A, I _{B1} = 7 A V _{BE(off)} = -5 V (V _{CC} = 125 V)	t _{on}		1.2	μs
Storage Time		t _{sv}		1.5	
Fall Time		t _{fi}		0.3	

¹ Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.

PACKAGE DIMENSIONS




- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.530 REF		38.86 REF	
B	0.990	1.050	25.15	26.67
C	0.250	0.335	6.35	8.51
D	0.057	0.063	1.45	1.60
E	0.060	0.070	1.53	1.77
G	0.430 BSC		10.92 BSC	
H	0.215 BSC		5.46 BSC	
K	0.440	0.480	11.18	12.19
L	0.665 BSC		16.89 BSC	
N	0.760	0.830	19.31	21.08
Q	0.151	0.165	3.84	4.19
U	1.187 BSC		30.15 BSC	
V	0.131	0.188	3.33	4.77

STYLE 1:
 PIN 1: BASE
 2: EMITTER
 CASE: COLLECTOR

CASE 197A-05
 TO-204AE (TO-3)
 ISSUE J

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