

BUV26

Switch-mode Series NPN Silicon Power Transistor

Designed for high-speed applications.

Features

- Switch-mode Power Supplies
- High Frequency Converters
- Relay Drivers
- Driver
- These Devices are Pb-Free and are RoHS Compliant*

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO(sus)}$	90	Vdc
Collector-Base Voltage	V_{CBO}	180	Vdc
Emitter-Base Voltage	V_{EBO}	7.0	Vdc
Collector Current – Continuous	I_C	20	Adc
Collector Current – Peak (pw 10 ms)	I_{CM}	30	Adc
Base Current – Continuous	I_B	4.0	Adc
Base Current – Peak	I_{BM}	6.0	Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$	P_D	85	W
Total Power Dissipation @ $T_C = 60^\circ\text{C}$	P_D	65	W
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +175	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.76	$^\circ\text{C/W}$

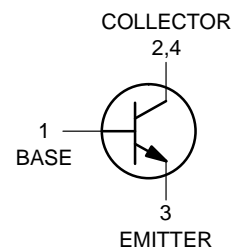


ON Semiconductor®

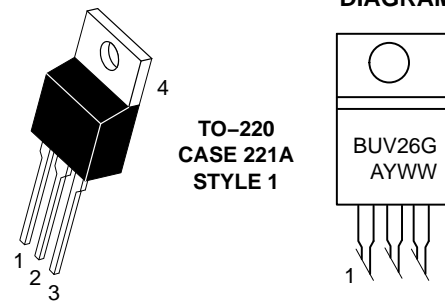
www.onsemi.com

**12 AMPERES
NPN SILICON
POWER TRANSISTORS
90 VOLTS, 85 WATTS**

SCHEMATIC



MARKING DIAGRAM



BUV26 = Device Code
 A = Assembly Location
 Y = Year
 WW = Work Week
 G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping
BUV26G	TO-220 (Pb-Free)	50 Units / Rail

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

BUV26

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Sustaining Voltage ($I_C = 200\text{ mA}$, $I_B = 0$, $L = 25\text{ mH}$)	$V_{CEO(sus)}$	90	–	Vdc
Collector Cutoff Current at Reverse Bias ($V_{CE} = 180\text{ V}$, $V_{BE} = -1.5\text{ V}$, $T_C = 125^\circ\text{C}$)	I_{CEX}	–	1.0	mAdc
Emitter Base Reverse Voltage ($I_E = 50\text{ mA}$)	V_{EBO}	7.0	30	V
Emitter Cutoff Current ($V_{EB} = 5.0\text{ V}$)	I_{EBO}	–	1.0	mAdc
Collector Cutoff Current ($V_{CE} = 180\text{ V}$, $R_{BE} = 50\ \Omega$, $T_C = 125^\circ\text{C}$)	I_{CER}	–	3.0	mAdc

ON CHARACTERISTICS

Collector–Emitter Saturation Voltage ($I_C = 6.0\text{ A}$, $I_B = 0.4\text{ A}$) ($I_C = 12\text{ A}$, $I_B = 1.2\text{ A}$)	$V_{CE(sat)}$	– –	0.6 1.5	Vdc
Base–Emitter Saturation Voltage ($I_C = 12\text{ A}$, $I_B = 1.2\text{ A}$)	$V_{BE(sat)}$	–	2.0	Vdc

SWITCHING CHARACTERISTICS (Resistive Load)

Turn On Time	$I_C = 12\text{ A}$, $I_B = 1.2\text{ A}$ $V_{CC} = 50\text{ V}$, $V_{BE} = 6.0\text{ V}$ $R_{B2} = 2.5\ \Omega$	t_{on}	–	0.6	μs
Storage Time		t_s	–	1.0	
Fall Time		t_f	–	0.15	

SWITCHING CHARACTERISTICS (Inductive Load)

Storage Time	$V_{CC} = 50\text{ V}$, $I_C = 12\text{ A}$ $I_{B(end)} = 1.2\text{ A}$, $V_B = 5.0\text{ V}$ $L_B = 0.5\ \mu\text{H}$, $T_J = 125^\circ\text{C}$	T_s	–	2.0	μs
Fall Time		T_f	–	.15	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse Test: Pulse width $\leq 300\ \mu\text{s}$; Duty cycle $\leq 2\%$.

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TYPICAL CHARACTERISTICS

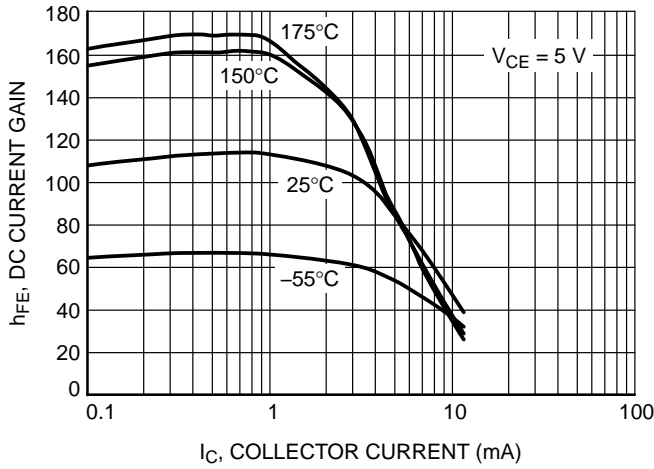


Figure 1. DC Current Gain

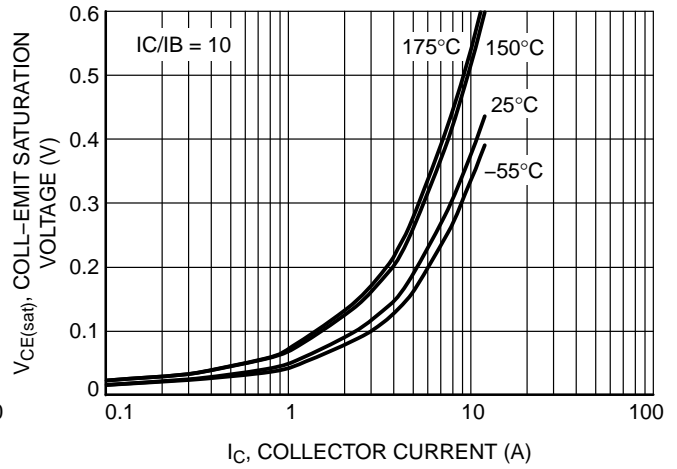


Figure 2. Collector-Emitter Saturation Voltage

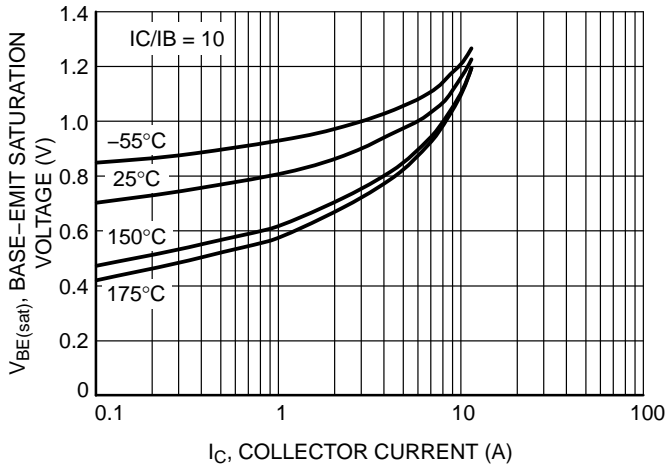


Figure 3. Base-Emitter Saturation Voltage

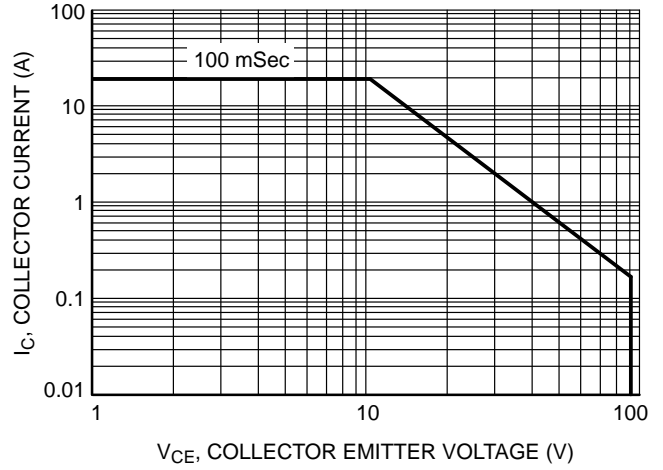
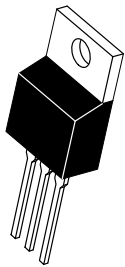


Figure 4. Safe Operating Area

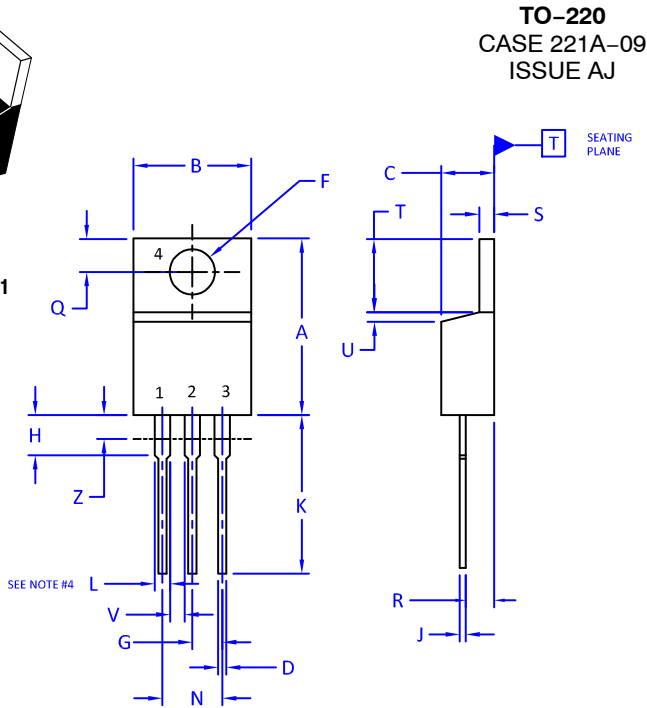
MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

ON Semiconductor®



SCALE 1:1



TO-220
CASE 221A-09
ISSUE AJ

DATE 05 NOV 2019

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 2009.
2. CONTROLLING DIMENSION: INCHES
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.
4. MAX WIDTH FOR F102 DEVICE = 1.35MM

DIM	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.570	0.620	14.48	15.75
B	0.380	0.415	9.66	10.53
C	0.160	0.190	4.07	4.83
D	0.025	0.038	0.64	0.96
F	0.142	0.161	3.60	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.161	2.80	4.10
J	0.014	0.024	0.36	0.61
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.41
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

STYLE 1:

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

STYLE 2:

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

STYLE 3:

- PIN 1. CATHODE
- 2. ANODE
- 3. GATE
- 4. ANODE

STYLE 4:

- PIN 1. MAIN TERMINAL 1
- 2. MAIN TERMINAL 2
- 3. GATE
- 4. MAIN TERMINAL 2

STYLE 5:

- PIN 1. GATE
- 2. DRAIN
- 3. SOURCE
- 4. DRAIN

STYLE 6:

- PIN 1. ANODE
- 2. CATHODE
- 3. ANODE
- 4. CATHODE

STYLE 7:

- PIN 1. CATHODE
- 2. ANODE
- 3. CATHODE
- 4. ANODE

STYLE 8:

- PIN 1. CATHODE
- 2. ANODE
- 3. EXTERNAL TRIP/DELAY
- 4. ANODE

STYLE 9:

- PIN 1. GATE
- 2. COLLECTOR
- 3. EMITTER
- 4. COLLECTOR

STYLE 10:

- PIN 1. GATE
- 2. SOURCE
- 3. DRAIN
- 4. SOURCE

STYLE 11:

- PIN 1. DRAIN
- 2. SOURCE
- 3. GATE
- 4. SOURCE

STYLE 12:

- PIN 1. MAIN TERMINAL 1
- 2. MAIN TERMINAL 2
- 3. GATE
- 4. NOT CONNECTED

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