

# 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<sub>J</sub> = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V <sub>CEO(sus)</sub>	90	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	180	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	7.0	Vdc
Collector Current – Continuous	I <sub>C</sub>	20	Adc
Collector Current – Peak (pw 10 ms)	I <sub>CM</sub>	30	Adc
Base Current – Continuous	I <sub>B</sub>	4.0	Adc
Base Current – Peak	I <sub>BM</sub>	6.0	Adc
Total Power Dissipation @ T <sub>C</sub> = 25°C	P <sub>D</sub>	85	W
Total Power Dissipation @ T <sub>C</sub> = 60°C	P <sub>D</sub>	65	W
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	- 65 to +175	°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 <sub>θJC</sub>	1.76	°C/W

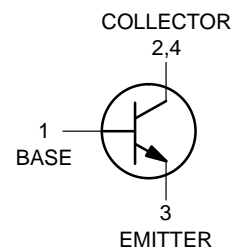


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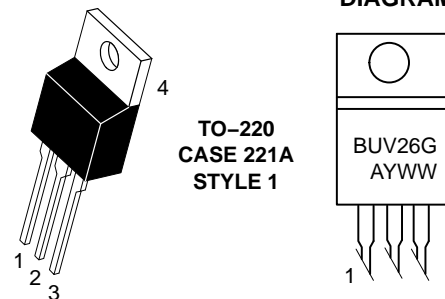
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**12 AMPERES  
NPN SILICON  
POWER TRANSISTORS  
90 VOLTS, 85 WATTS**

### 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	$\mu\text{s}$
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	$\mu\text{s}$
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

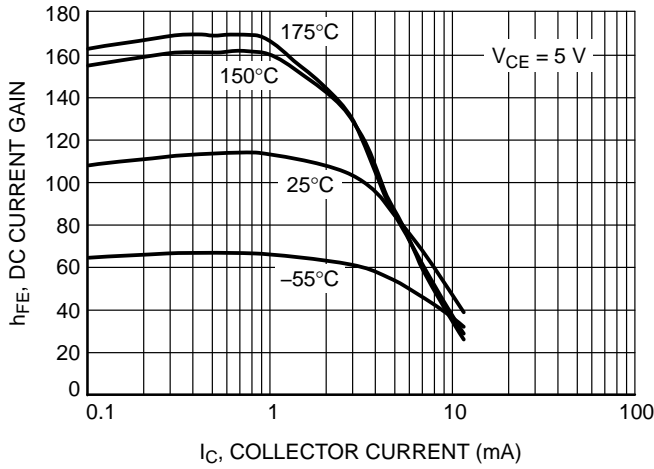


Figure 1. DC Current Gain

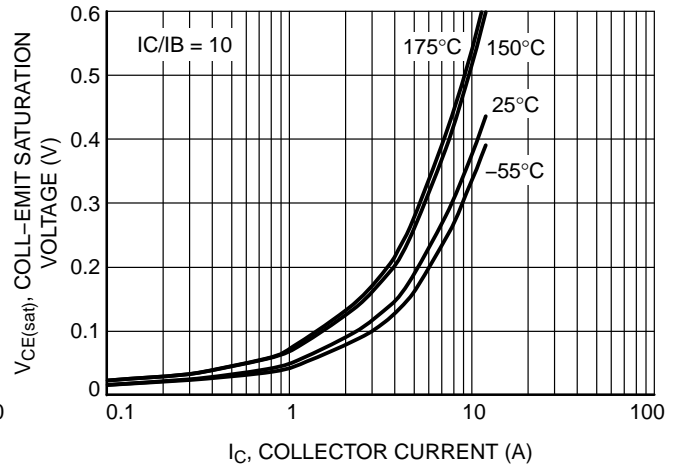


Figure 2. Collector-Emitter Saturation Voltage

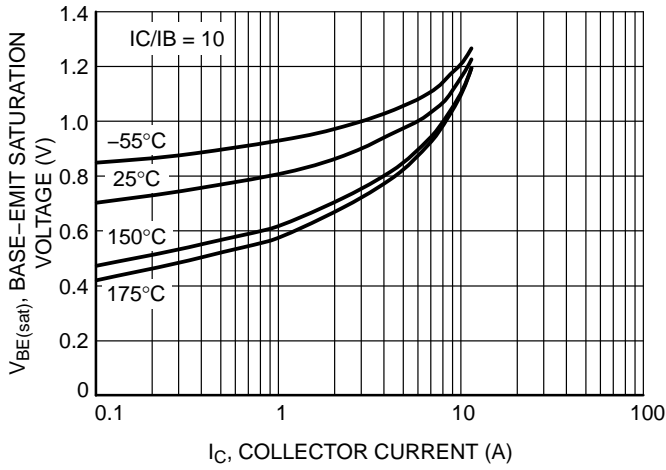


Figure 3. Base-Emitter Saturation Voltage

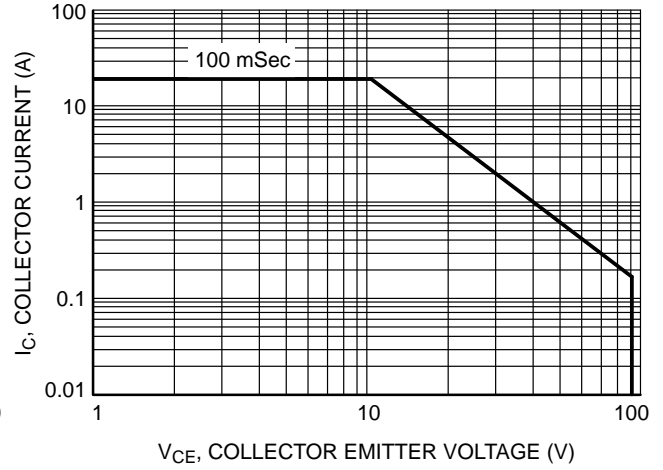
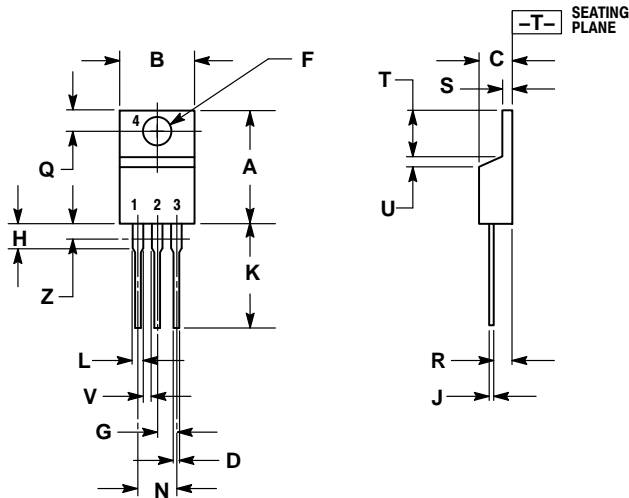


Figure 4. Safe Operating Area

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## PACKAGE DIMENSIONS

TO-220  
CASE 221A-09  
ISSUE AH




**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

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	3.61	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	1.39
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:**

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

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