

# BUV26

## Switchmode Series NPN Silicon Power Transistor

Designed for high-speed applications.

### Features

- Switchmode Power Supplies
- High Frequency Converters
- Relay Drivers
- Driver
- Pb-Free Package is Available\*

### 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
– Peak (pw 10 ms)	$I_{CM}$	30	Apk
Base Current – Continuous	$I_B$	4.0	Adc
	$I_{BM}$	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	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

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

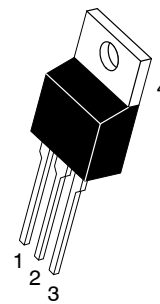
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



**ON Semiconductor**<sup>®</sup>

<http://onsemi.com>

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



**TO-220AB  
CASE 221A  
STYLE 1**

### MARKING DIAGRAM



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

### ORDERING INFORMATION

Device	Package	Shipping
BUV26	TO-220	50 Units / Rail
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	

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

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## TYPICAL CHARACTERISTICS

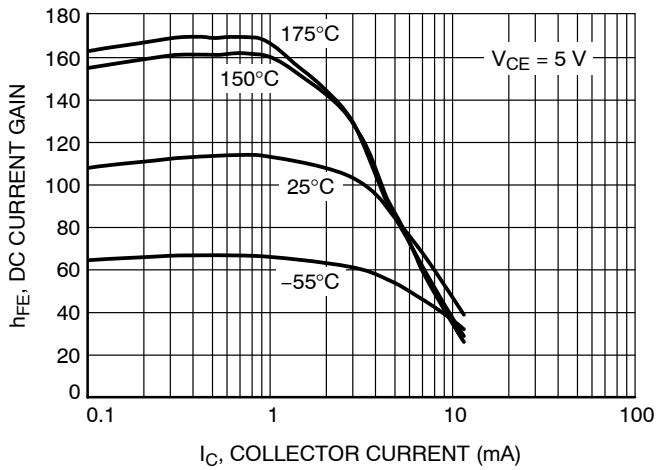


Figure 1. DC Current Gain

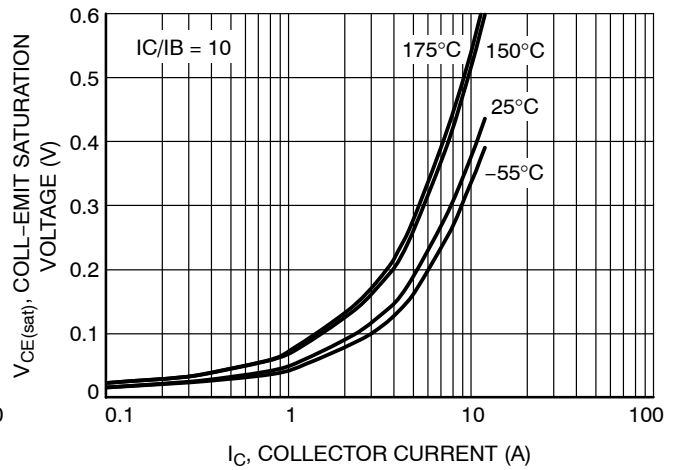


Figure 2. Collector-Emitter Saturation Voltage

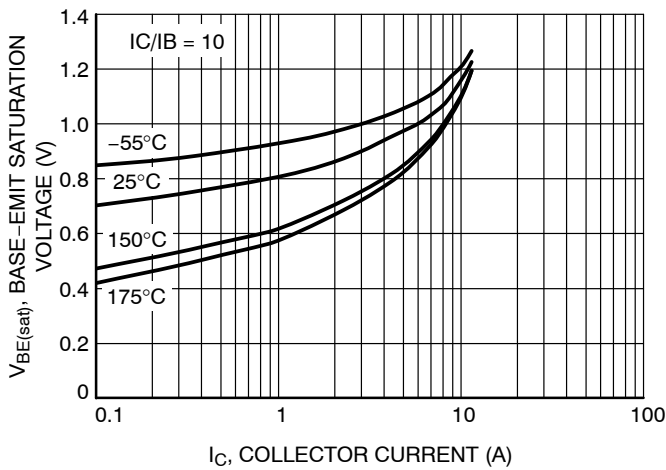


Figure 3. Base-Emitter Saturation Voltage

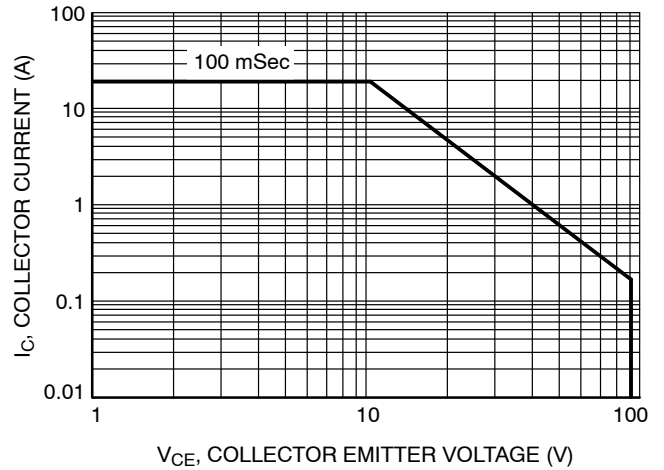
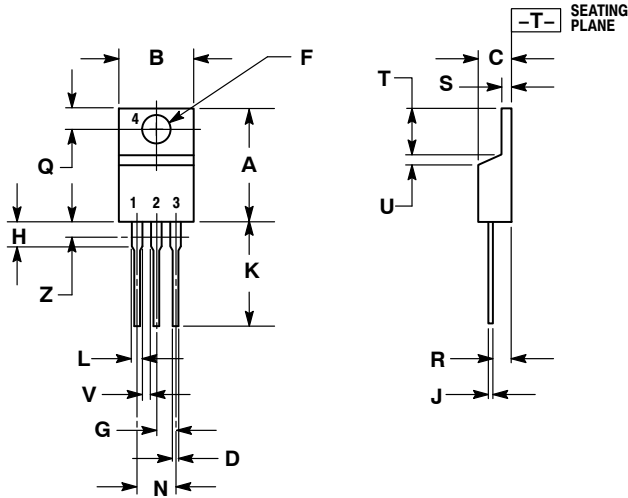


Figure 4. Safe Operating Area

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## PACKAGE DIMENSIONS

### TO-220 CASE 221A-09 ISSUE AG



**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	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.036	0.64	0.91
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	0.025	0.36	0.64
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:**

- PIN 1. BASE
- COLLECTOR
- EMITTER
- COLLECTOR

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