

# 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	$V_{CE(sus)}$	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	$^\circ\text{C/W}$

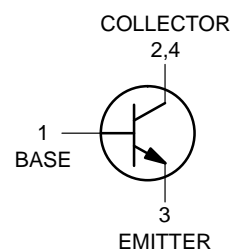


**ON Semiconductor®**

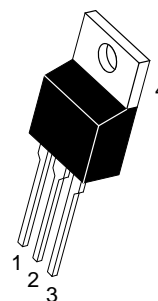
[www.onsemi.com](http://www.onsemi.com)

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

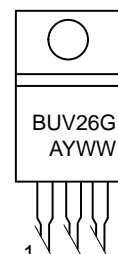
### SCHEMATIC



### MARKING DIAGRAM



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



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
----------------	--------	-----	-----	------

### 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	$V_{CC} = 50\text{ V}$ , $I_C = 12\text{ A}$ $I_{B(end)} = 1.2\text{ A}$ , $V_B = 5.0\text{ V}$ $L_B = 0.5\text{ pH}$ , $T_J = 125^\circ\text{C}$	$T_s$	–	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  $\leq 2\%$ .

TYPICAL CHARACTERISTICS

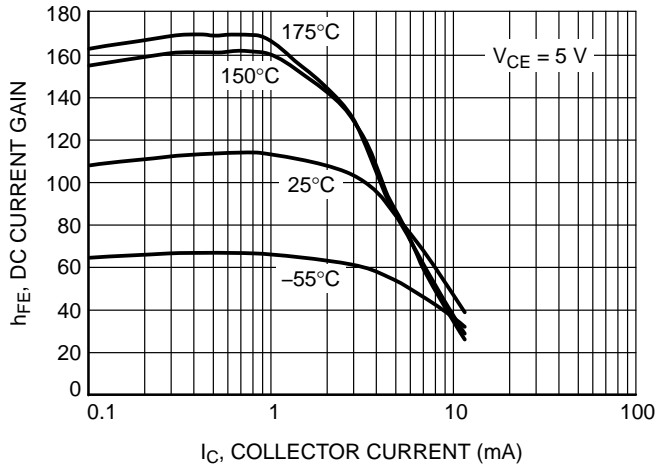


Figure 1. DC Current Gain

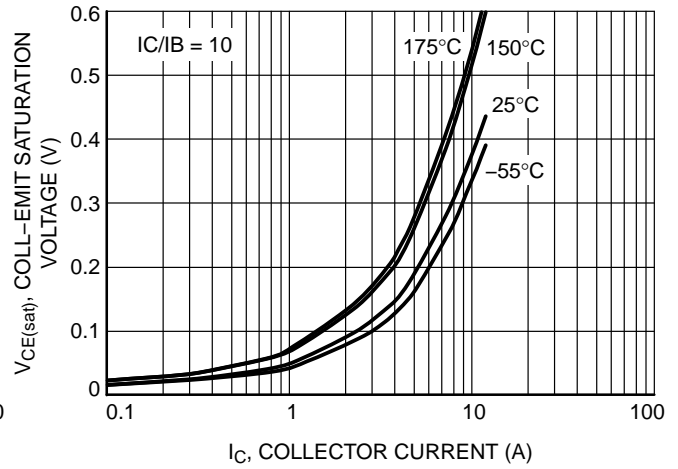


Figure 2. Collector-Emitter Saturation Voltage

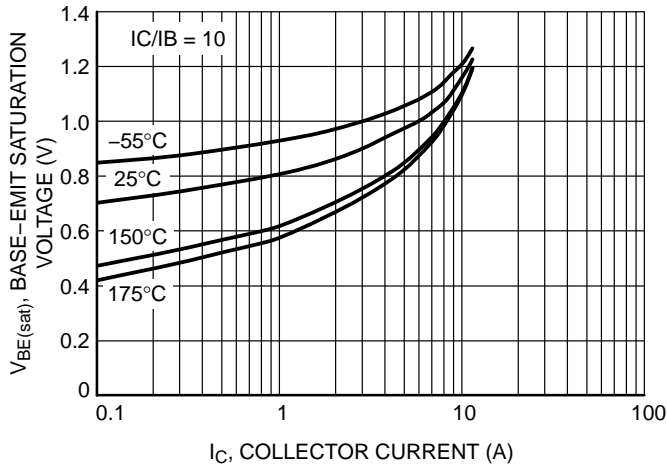


Figure 3. Base-Emitter Saturation Voltage

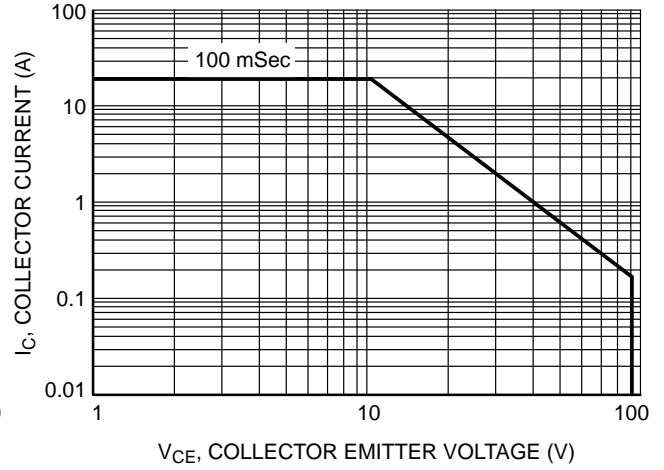


Figure 4. Safe Operating Area

**onsemi**, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## ADDITIONAL INFORMATION

### TECHNICAL PUBLICATIONS:

Technical Library: [www.onsemi.com/design/resources/technical-documentation](http://www.onsemi.com/design/resources/technical-documentation)  
onsemi Website: [www.onsemi.com](http://www.onsemi.com)

### ONLINE SUPPORT: [www.onsemi.com/support](http://www.onsemi.com/support)

For additional information, please contact your local Sales Representative at  
[www.onsemi.com/support/sales](http://www.onsemi.com/support/sales)