

Is New Part of



Learn more about ns mi™, please visit our website at
www.nsmi.com

T432.5247UGQ BJ ES2.417C0

Package
TO-247-4L

Typical Applications



Maximum Ratings

Parameter	Symbol		Value	Units
JFET Gate (JG) to source voltage	V_{DS}	DC	750	V
			-30 to +3	V
			-30 to +30	V
MOSFET Gate (G) to source voltage	V_{GS}		-20 to +20	V
			-25 to +25	V
Pulsed drain current ³	I_D	$T_C < 125^{\circ}\text{C}$	120	A
	I_{DM}		588	A
	E_{AS}	$L=15\text{mH}, I_{AS} = 6.5\text{A}$	316	mJ
Power dissipation	P_{tot}	$T_C = 25^{\circ}\text{C}$	714	W
	$T_{J,max}$		175	$^{\circ}\text{C}$
	T_J, T_{STG}		-55 to 175	$^{\circ}\text{C}$
	T_L		250	$^{\circ}\text{C}$

- 1. +30V AC rating applies for turn-on pulses <200ns applied with external $R_G > 1\text{W}$.
- 2. Limited by bondwires
- 3. Pulse width t_p limited by $T_{J,max}$
- 4. Starting $T_J = 25^{\circ}\text{C}$

Thermal Characteristics

Parameter	Symbol	Test Conditions	Value			
			Min	Typ	Max	
	R _{qJC}			0.16	0.21	°C/W



Electrical Characteristics

Typical Performance - Static

	Min	Typ	Max	
BV_{DS}	750			V
		6	130	
		45		
I_{JGSS}		0.1	100	mA
I_{GSS}		6	20	mA
	$V_{JGS}=2V$	5.3		
	$T_J=25^{\circ}C$			
	$T_J=25^{\circ}C$	5.9	7.5	
	$T_J=125^{\circ}C$	9.8		
	$T_J=175^{\circ}C$	12.9		
$V_{JG(th)}$	-8.3	-6.0	-3.7	V
$V_{G(th)}$	4			



Typical Performance - Dynamic with MOSFET gate as control terminal and $V_{GS}=0V$

	Min	Typ	Max
C_{iss}		8374	
C_{oss}		362	
C_{rss}		4	



Typical Performance - Dynamic with JFET gate as control terminal and $V_{GS}=+12V$

Parameter	Symbol	Test Conditions	Value			Units
			Min	Typ	Max	
JFET total gate charge	C_{Jiss}	$V_{DS}=400V, I_D=80A,$ $V_{JGS} = -18V \text{ to } 0V$		3028		nC
	C_{Joss}			364		
	C_{Jrss}			360		
	Q_{JG}			400		
JFET gate-drain charge	Q_{JGD}			270		
JFET gate-source charge	Q_{JGS}			60		

Typical Performance Diagrams - MOSFET gate as control terminal and $V_{GS}=0V$

Figure 1. Typical output characteristics at $T_j = -55^{\circ}C$,
 $t_p < 250ms$

Figure 2. Typical output characteristics at $T_j = 25^{\circ}C$,
 $t_p < 250ms$



Figure 3. Typical output characteristics at $T_j = 175^{\circ}\text{C}$,
 $t_p < 250\text{ms}$

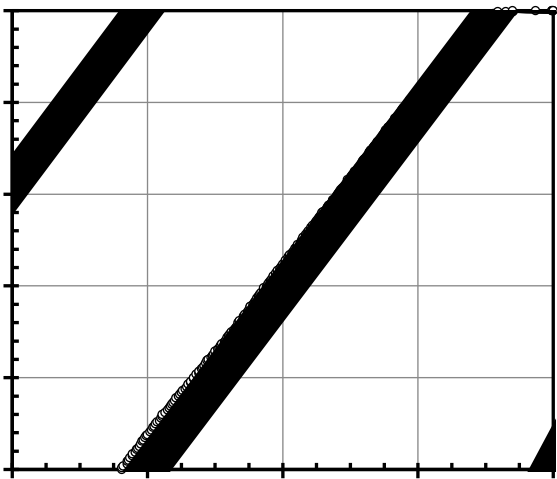


Figure 11. 3rd quadrant characteristics at $T_j = 175^{\circ}\text{C}$

Figure 12. Typical stored energy in C_{oss} at $V_{GS} = 0\text{V}$

Figure 13. Typical capacitances at $f = 100\text{kHz}$ and $V_{GS} = 0\text{V}$

Figure 14. DC drain current derating



Figure 17. Safe operation area at $T_c = 25^{\circ}\text{C}$, $D = 0$,
Parameter t_p

Figure 18. Reverse recovery charge f_1 (ch)2.998 (arge



Recommended Gate Drive Approach: ClampDRIVE method



Important notice

The information contained herein is believed to be reliable; however, Qorvo makes no warranties regarding the information contained herein and assumes no responsibility or liability whatsoever for the use of the information contained herein. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for Qorvo products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information. THIS INFORMATION DOES NOT CONSTITUTE A WARRANTY WITH RESPECT TO THE PRODUCTS DESCRIBED HEREIN, AND QORVO HEREBY DISCLAIMS ANY AND ALL WARRANTIES WITH RESPECT TO SUCH PRODUCTS WHETHER EXPRESSED OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Without limiting the generality of the foregoing, Qorvo products are not warranted or authorized for use as critical components in medical, life-saving, or life-sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.



**TO-247-4L PACKAGE
OUTLINE, PART MARKING
AND TUBE SPECIFICATIONS**

PACKAGE OUTLINE

DIM	MIN	MAX	MIN	MAX
-----	-----	-----	-----	-----



PART MARKING

TO-247-4L PACKAGE OUTLINE, PART MARKING AND TUBE SPECIFICATIONS

PACKING TYPE

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. **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**
