

MOSFET - N-Channel, TO247-4L

650 V, 19 mΩ, 99 A

NVH4L025N065SC1

- Typ. $R_{DS(on)} = 19\text{ m}\Omega @ V_{GS} = 18\text{ V}$
Typ. $R_{DS(on)} = 25\text{ m}\Omega @ V_{GS} = 15\text{ V}$
- Ultra Low Gate Charge ($Q_{G(tot)} = 164\text{ nC}$)
- Low Capacitance ($C_{oss} = 278\text{ pF}$)
- 100% Avalanche Tested
- AEC-Q101 Qualified and PPAP Capable
- This Device is Pb-Free and is RoHS Compliant
- Automotive On Board Charger
- Automotive DC/DC Converter for EV/HEV

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

Drain-to-Source Voltage		V_{DSS}	650	V	
Gate-to-Source Voltage		V_{GS}	-8/+22	V	
Recommended Operation Values of Gate-to-Source Voltage		$T_C < 175^\circ\text{C}$ V_{GSop}	-5/+18	V	
Continuous Drain Current (Note 1)	Steady State	$T_C = 25^\circ\text{C}$	I_D	99	A
Power Dissipation (Note 1)			P_D	348	W
Continuous Drain Current (Note 1)	Steady State	$T_C = 100^\circ\text{C}$	I_D	70	A
Power Dissipation (Note 1)			P_D	174	W
Pulsed Drain Current (Note 2)	$T_C = 25^\circ\text{C}$		I_{DM}	323	A
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to +175	$^\circ\text{C}$	
Source Current (Body Diode)		I_S	75	A	
Single Pulse Drain-to-Source Avalanche Energy ($I_{L(pk)} = 11.2\text{ A}$, $L = 1\text{ mH}$) (Note 3)		E_{AS}	62	mJ	
Maximum Lead Temperature for Soldering (1/8" from case for 5 s)		T			

Junction-to-Case – Steady State (Note 1)		0.43		°C/W
Junction-to-Ambient – Steady State (Note 1)		40		

(T_J = 25°C unless o

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

Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	650	-	-	V
Drain-to-Source Breakdown Voltage Temperature Coefficient	V _{(BR)DSS} /T _J	-	0.15	-	V/°C
Zero Gate Voltage Drain Current	I _{DSS}	-	-	10	μA
		-	-	1	mA
Gate-to-Source Leakage Current	I _{GSS}	-	-	250	nA

(Note 2)

Gate Threshold Voltage	V _{GS(TH)}	1.8	2.8	4.3	V
Recommended Gate Voltage	V _{GOP}	-5	-	+18	V
Drain-to-Source On Resistance	R _{DS(on)}	-	25	-	mΩ
		-	19	28.5	
		V _{GS} = 18 V, I _D = 45 A, T _J = 175°C			
Forward Transconductance	g _{FS}	V _{DS} = 10 V, I _D = 45 A			S

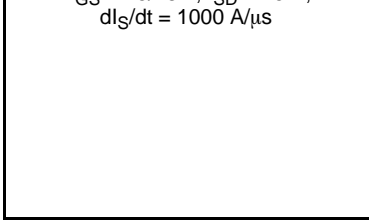
3480

Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1 MHz, V _{DS} = 325 V	-	3480	-	pF
Output Capacitance	C _{OSS}					

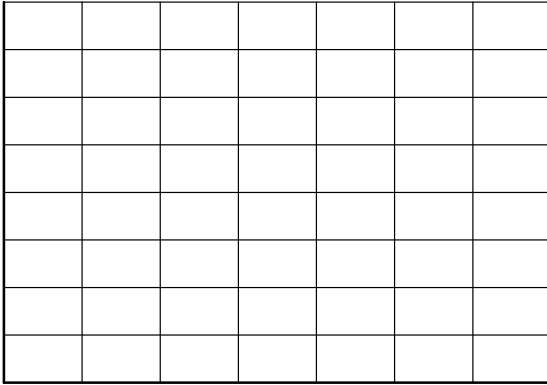
Reverse Recovery Charge

RR
QQ

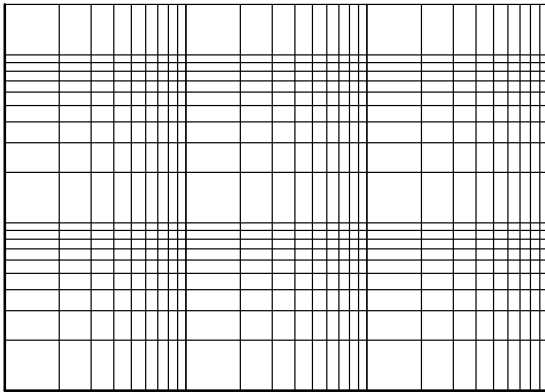
$di_s/dt = 1000 \text{ A}/\mu\text{s}$



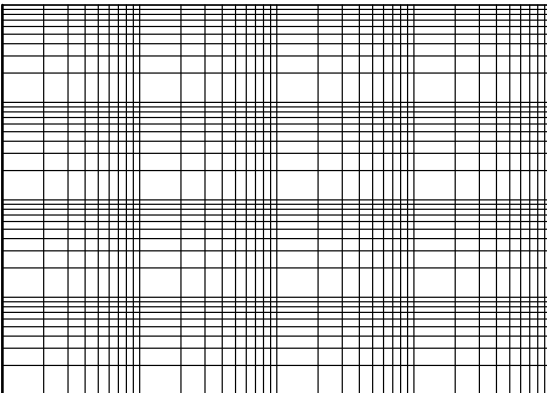
V



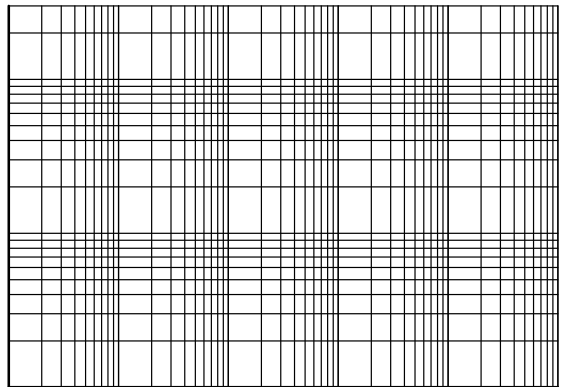
Q_g , GATE CHARGE (nC)



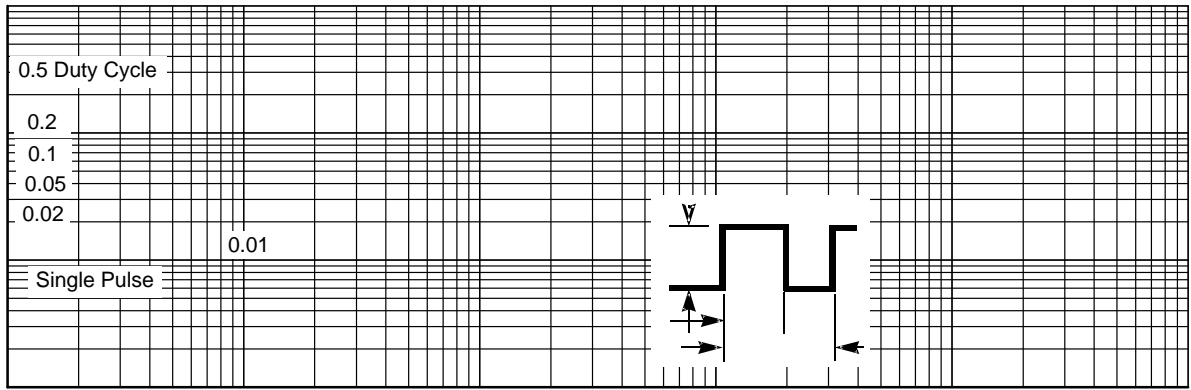
t_{AV} , TIME IN AVALANCHE (ms)



V_{DS} , DRAIN-TO-SOURCE VOLTAGE (V)



$Z_{\theta JC}(t)$, EFFECTIVE TRANSIENT
THERMAL RESISTANCE ($^{\circ}\text{C}/\text{W}$)



t , RECTANGULAR PULSE DURATION (s)

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. **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**
