S ● Ca (S C) MOSFET – E S C, 22 m● m, 1200 V, M3S, TO-247-4L

NVH4L022N120M3S

Features

- Typ. $R_{DS(on)}$ = 22 mΩ @ V_{GS} = 18 V
- Ultra Low Gate Charge ($Q_{G(tot)}$ = 137 nC)
- High Speed Switching with Low Capacitance (C_{oss} = 146 pF)
- 100% Avalanche Tested
- AEC−Q101 Qualified and PPAP Capable
-

Continuous Drain Current (Notes 1, 3)	Steady State	T_C = 25 °C	I_D	89	A
Power Dissipation (Note 1)			P_D	348	W
Continuous Drain Current (Notes 1, 3)	Steady State	T_C = 100°C	I_D	62	A
Power Dissipation (Note 1)			P_D	174	W
Pulsed Drain Current (Note 2)	T_C = 25°C		I_{DM}	275	A
Operating Junction and Storage Temperature Range			T_J, T_{stg}	−55 to +175	°C
Source Current (Body Diode) T_C = 25°C V_{GS} = −3 V (Note 1)			I_S	72	A
Single Pulse Drain−to−Source Avalanche Energy ($I_{L(pk)}$ = 23.1 A, L = 1 mH) (Note 4)			E_{AS}	267	mJ
Maximum Lead Temperature for Soldering (1/25″ from case for 10 s)			T_L	270	°C

© Semiconductor Components Industries, LLC, 2021

Table 1. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Junction−to−Case − Steady State (Note 1)	$R_{\theta JC}$	0.43	°C/W
Junction−to−Ambient − Steady State (Note 1)	$R_{\theta JA}$	40	

Table 2. ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit

TYPICAL CHARACTERISTICS

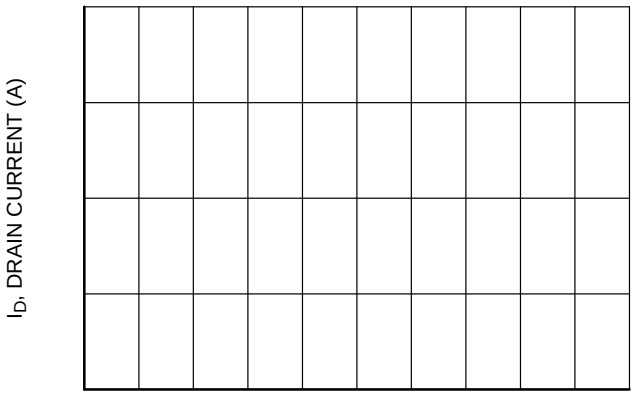


Figure 1. On−Region Characteristics

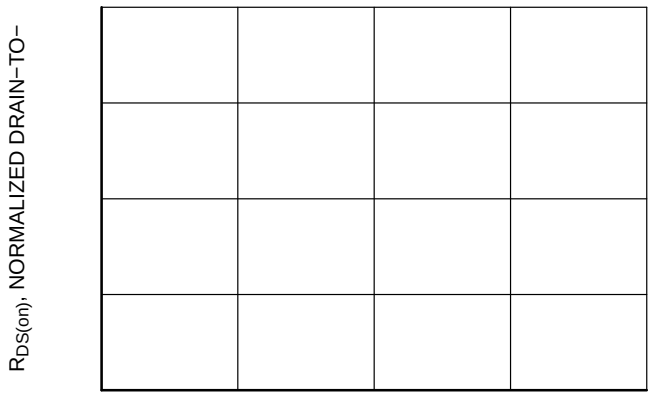


Figure 2. Normalized On−Resistance vs. Drain Current and Gate Voltage

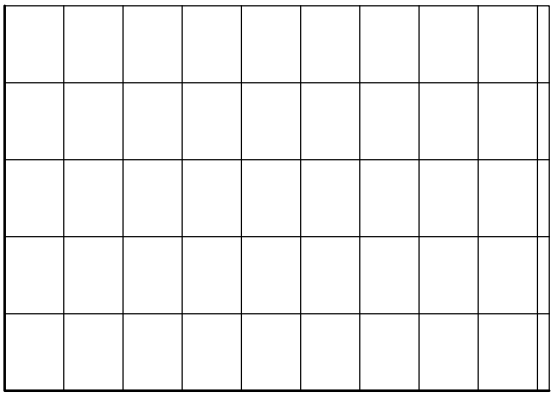


Figure 3. On−Resistance Variation with Temperature

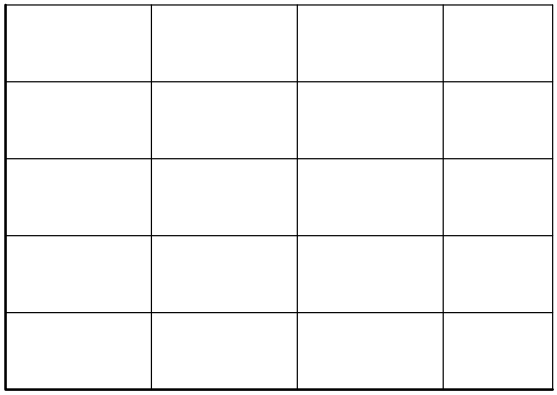


Figure 4. On−Resistance vs. Gate−to−Source Voltage

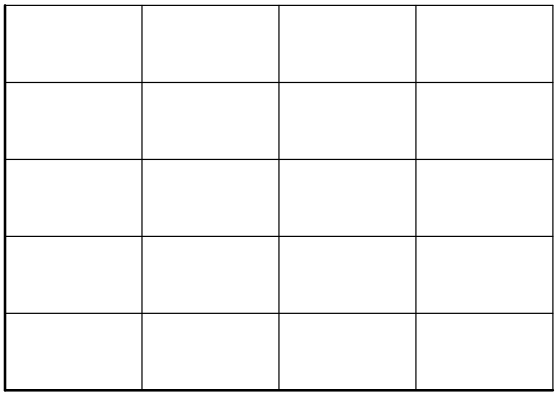


Figure 5. Transfer Characteristics

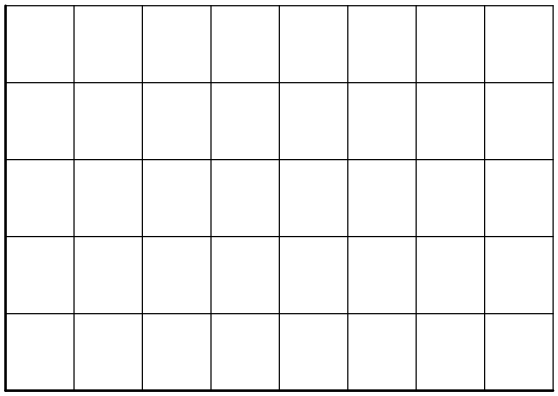
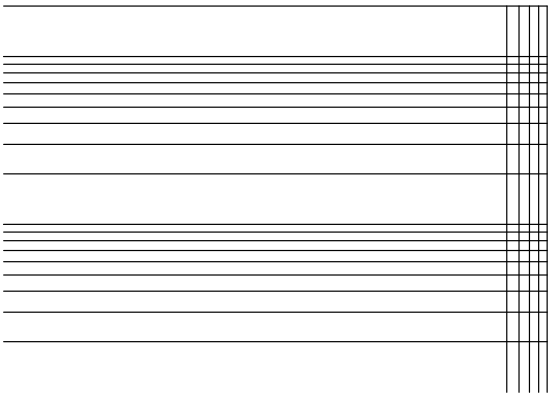
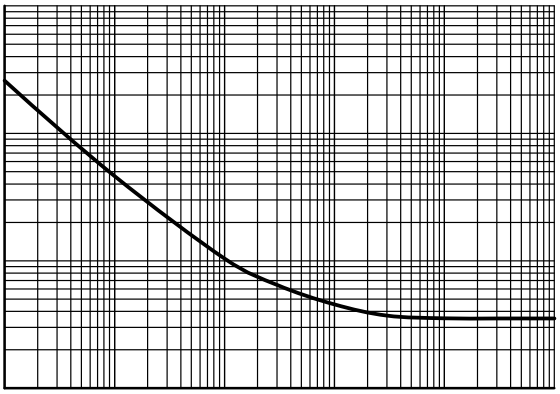


Figure 6. Switching Loss vs. Drain Current

TYPICAL CHARACTERISTICS

TYPICAL CHARACTERISTICS (continued)

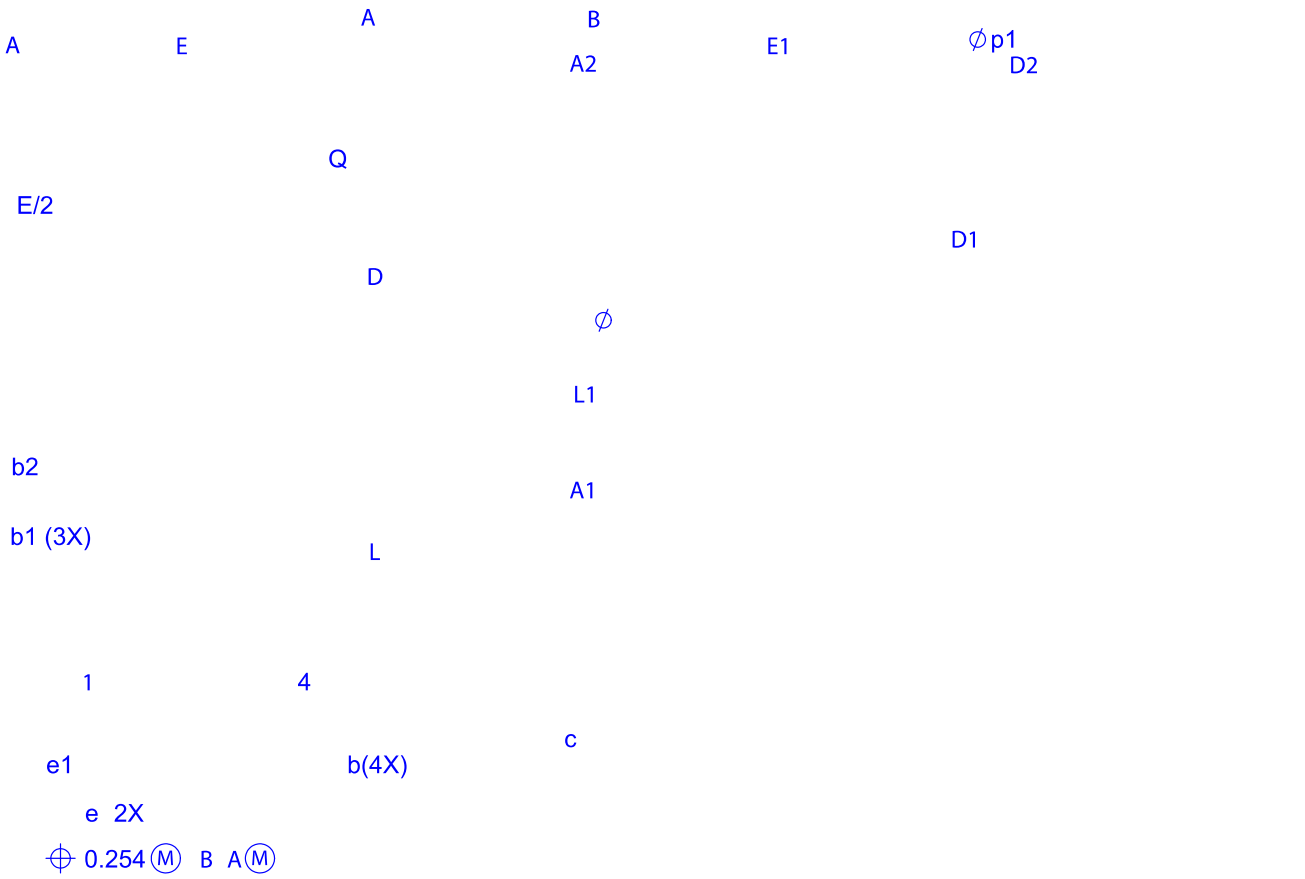




onsemi, , and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, 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** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information 14.4414 TD0 Tc3i

TO−247−4LD
CASE 340CJ
ISSUE A

DATE 16 SEP 2019



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**