

MOSFET - SiC Power, Single  
N-Channel, TO247-3L  
650 V, 57 m

# NVHL075N065SC1

## THERMAL RESISTANCE MAXIMUM RATINGS

Parameter	Symbol	Max	Unit
Junction to Case Steady State (Note 1)	$R_{JC}$	1.01	°C/W
Junction to Ambient Steady State (Note 1)	$R_{JA}$	40	

## ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 1\text{ mA}$	650			V
Drain to Source Breakdown Voltage Temperature Coefficient	$V_{(BR)DSS}/T_J$	$I_D = 20\text{ mA}$ , referenced to $25^\circ\text{C}$		0.15		V/°C
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{GS} = 0\text{ V}, V_{DS} = 650\text{ V}$	$T_J = 25^\circ\text{C}$		10	A
			$T_J = 175^\circ\text{C}$		1	mA
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS} = +18/15\text{ V}, V_{DS} = 0\text{ V}$			250	nA

### ON CHARACTERISTICS (Note 2)

Recommended Gate Voltage	$V_{GOP}$		15		+18	V
Drain to Source On Resistance	$R_{DS(on)}$	$V_{GS} = 15\text{ V}, I_D = 15\text{ A}, T_J = 25^\circ\text{C}$		75		m
		$V_{GS} = 18\text{ V}, I_D = 15\text{ A}, T_J = 25^\circ\text{C}$		57	85	
		$V_{GS} = 18\text{ V}, I_D = 15\text{ A}, T_J = 175^\circ\text{C}$		68		
Forward Transconductance	$g_{FS}$	$V_{DS} = 10\text{ V}, I_D = 15\text{ A}$		9		S

### CHARGES, CAPACITANCES & GATE RESISTANCE

Input Capacitance	$C_{ISS}$	$V_{GS} = 0\text{ V}, f = 1\text{ MHz}, V_{DS} = 325\text{ V}$		1196		pF
Output Capacitance	$C_{OSS}$			107		
Reverse Transfer Capacitance	$C_{RSS}$			9		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 15/18\text{ V}, V_{DS} = 520\text{ V}, I_D = 15\text{ A}$		61		nC
Gate to Source Charge	$Q_{GS}$			19		
Gate to Drain Charge	$Q_{GD}$			18		

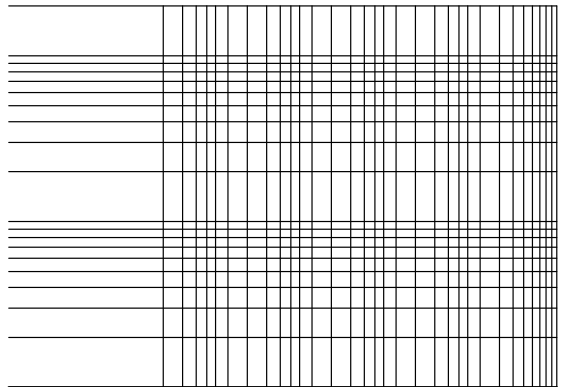
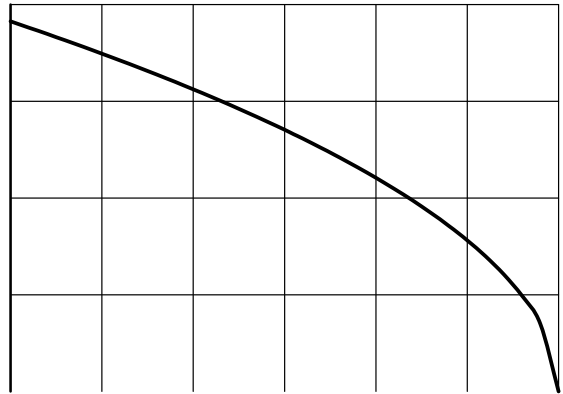
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ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$  unless otherwise specified) (continued)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>DRAIN <math>\bar{i}</math>SOURCE DIODE CHARACTERISTICS</b>						
Reverse Recovery Time	$t_{RR}$	$V_{GS} = \bar{i}5/18\text{ V}, I_{SD} = 15\text{ A},$ $dI_S/dt = 1000\text{ A/ s}$	$\bar{i}$	16	$\bar{i}$	ns
Reverse Recovery Charge	$Q_{RR}$		$\bar{i}$	68	$\bar{i}$	nC
Reverse Recovery Energy	$E_{REC}$		$\bar{i}$	11	$\bar{i}$	J
Peak Reverse Recovery Current	$I_{RRM}$		$\bar{i}$	8.7	$\bar{i}$	A
Charge time	$T_a$		$\bar{i}$	8.4	$\bar{i}$	



TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS

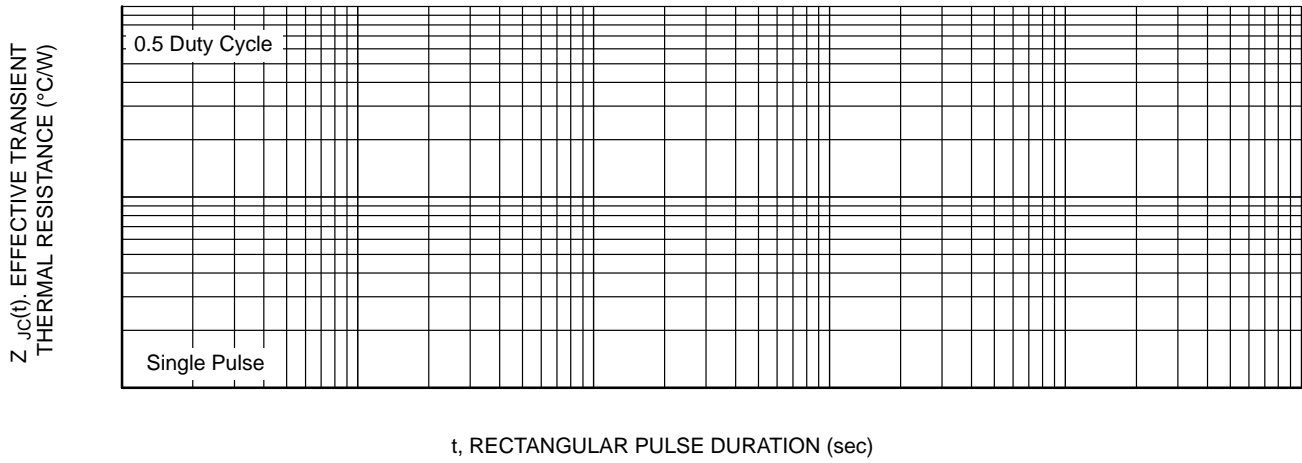


Figure 13. Junction to Case Thermal Response

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PACKAGE DIMENSIONS

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