

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☒ Surface-mounted package
- ☒ Low Thermal Resistance

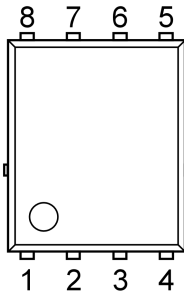
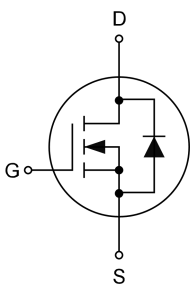
1.2 Applications

- ☒ Motor driver
- ☒ DC/DC Converter

1.3 Quick reference

- ☒ $BV \cong 80\text{ V}$
- ☒ $P_{tot} \cong 250\text{ W}$
- ☒ $I_D \cong 200\text{ A}$
- ☒ $R_{DS(ON)} \cong 1.8\text{ m}\Omega @ V_{GS} = 10\text{ V}$
- ☒ $R_{DS(ON)} \cong 2.8\text{ m}\Omega @ V_{GS} = 6\text{ V}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,3	Source	 Top View PDFN5x6-8L	
4	Gate		
5,6,7,8	Drain		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_C=25^{\circ}\text{C}$	-	80	V
V_{GS}	Gate-Source Voltage	$T_C=25^{\circ}\text{C}$	-	± 20	V
I_D^*	Drain Current	$T_C=25^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	200	A
		$T_C=100^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	177	A
I_{DM}^*	Pulsed Drain Current	$T_C=25^{\circ}\text{C}, V_{GS}=10\text{ V}$	-	800	A
P_{tot}	Drain Power Dissipation	$T_C=25^{\circ}\text{C}$	-	250	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range		-55	175	$^{\circ}\text{C}$
E_{AS}	Single Pulsed Avalanche Energy	$V_{DD}=50\text{ V}, L=1.0\text{ mH}$	-	800	mJ
$R_{\theta JA}^{**}$	Thermal Resistance-Junction to Ambient		-	60	$^{\circ}\text{C/W}$
$R_{\theta JC}^{**}$	Thermal Resistance-Junction to Case		-	0.6	

Notes:

- * Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$
- ** Surface Mounted on 1 in² pad area, $t \leq 10\text{ sec}$
- *** Limited by bonding wire

4. Marking Information

Product Name	Marking
KJ1R5N08GH	1R5N08H YWWXXX

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ1R5N08GH	PDFN5x6-8L	-	-	5000	

Note: KJ1R5N08GH defines "Green" as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight; Follow IEC 61249-2-21 and IPC/JEDEC J-STD-020C)

6. Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

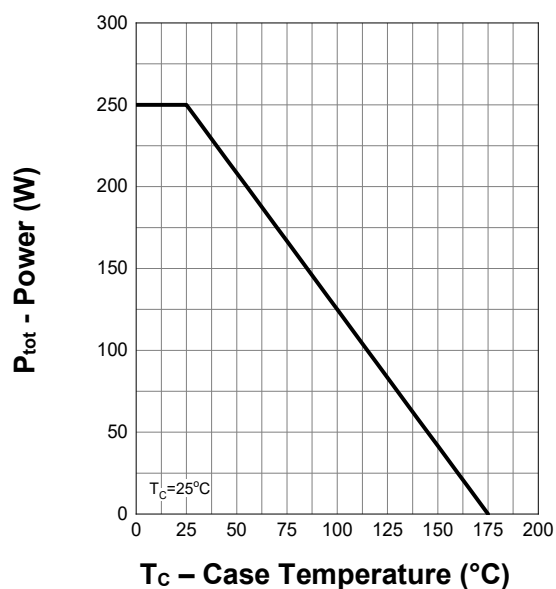
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _{DS} =250 μA	80	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250 μA	2.0	-	4.0	V
I _{DSS}	Drain Source Current	V _{DS} =48 V, V _{GS} =0 V	-	-	1	μA
I _{GSS}	Gate Leakage Current	V _{GS} =±20 V, V _{DS} =0 V	-	-	±100	nA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} =10 V, I _{DS} =50 A	-	1.5	1.8	mΩ
		V _{GS} =6 V, I _{DS} =30 A	-	2.3	2.8	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =50 A, V _{GS} =0 V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =50 A, V _{GS} =0 V, dI _{SD} /dt=100 A/μs	-	78	-	ns
Q _{rr}	Reverse Recovery Charge		-	72	-	nC
Dynamic Characteristics ^b						
C _{iss}	Input Capacitance	V _{GS} =0 V, V _{DS} =40 V, Frequency=1 MHz	-	7999	-	pF
C _{oss}	Output Capacitance		-	1077	-	
C _{rss}	Reverse Transfer Capacitance		-	52	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =40 V, V _{GEN} =10 V, R _G =3.9 Ω, R _L =0.8 Ω, I _{DS} =50 A	-	27	-	ns
t _r	Turn-on Rise Time		-	73	-	
t _{d(off)}	Turn-off Delay Time		-	82	-	
t _f	Turn-off Fall Time		-	45	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{DS} =40 V, V _{GS} =10 V, I _{DS} =50 A	-	131	-	nC
Q _{gs}	Gate-Source Charge		-	42	-	
Q _{gd}	Gate-Drain Charge		-	28	-	

Notes:

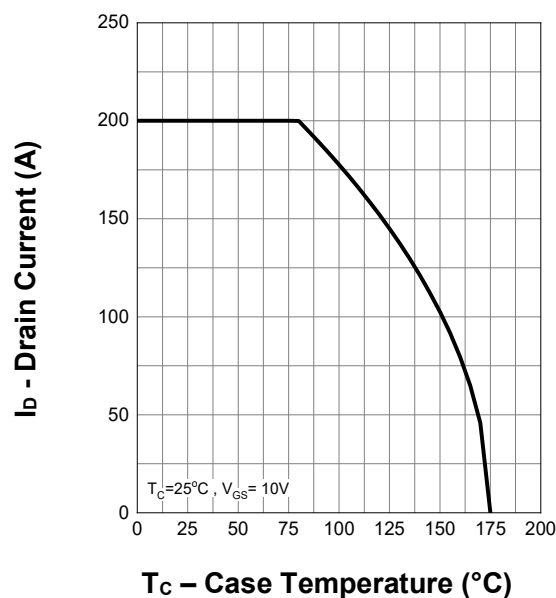
- Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%
- Guaranteed by design, not subject to production testing

7. Typical Characteristics

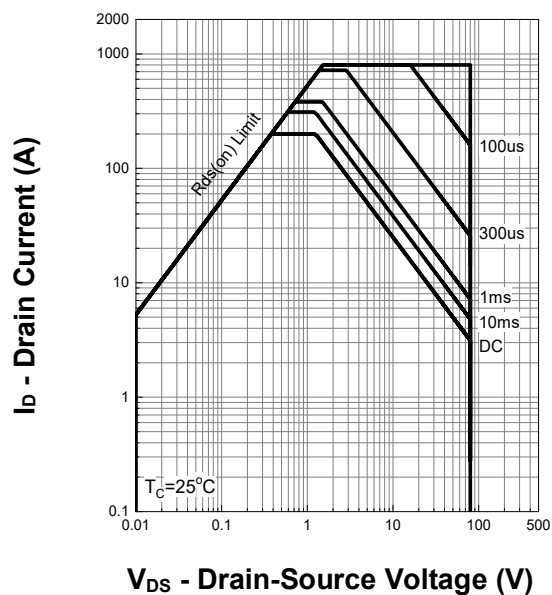
Power Capability



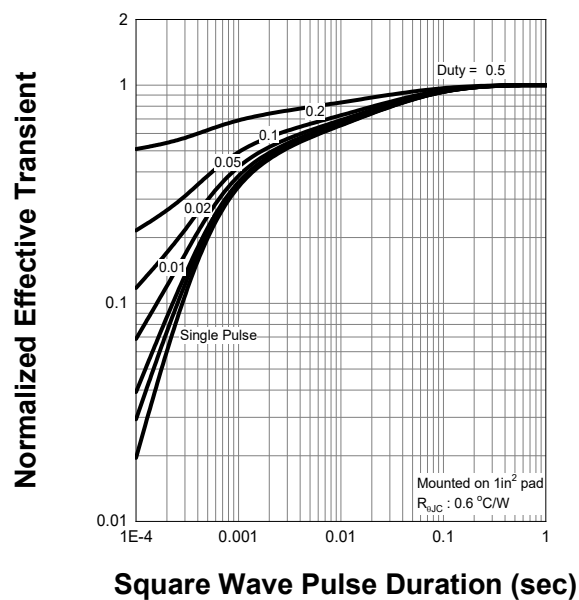
Current Capability



Safe Operating Area

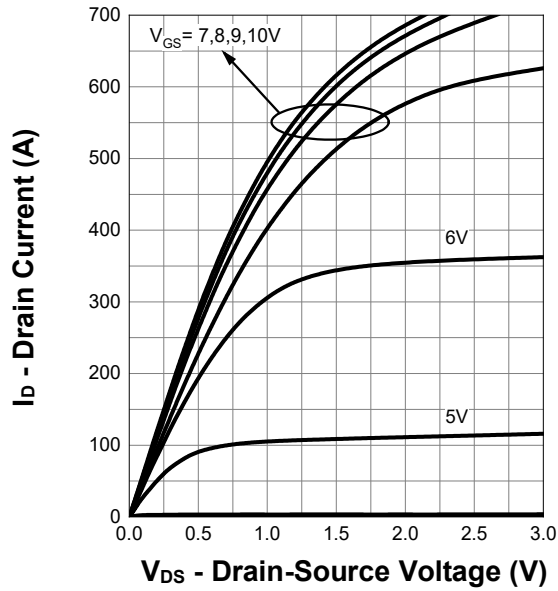


Transient Thermal Impedance

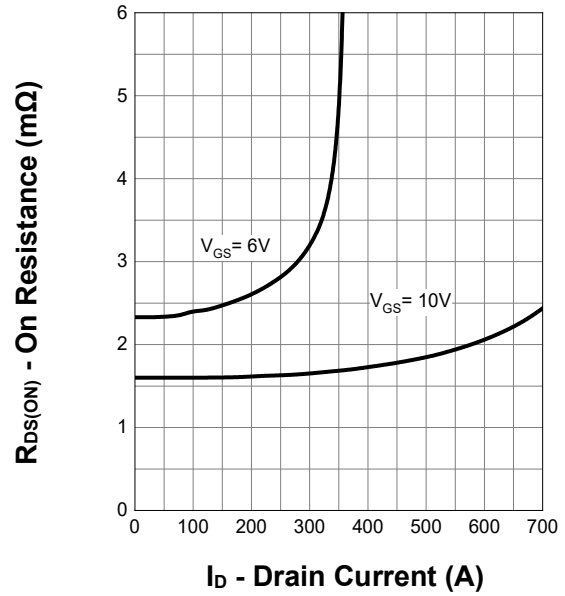


7. Typical Characteristics (Cont.)

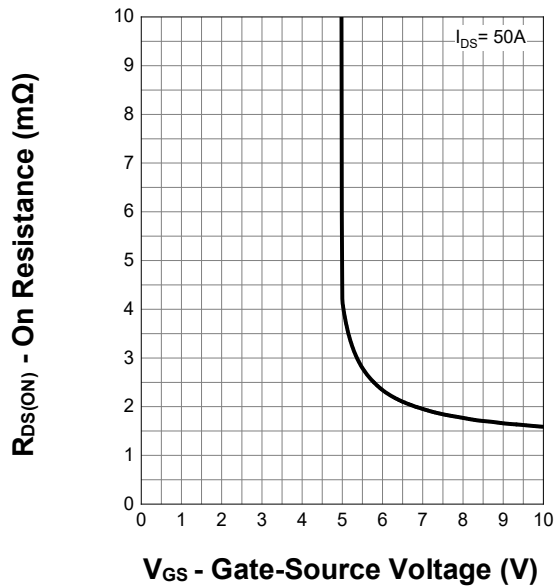
Output Characteristics



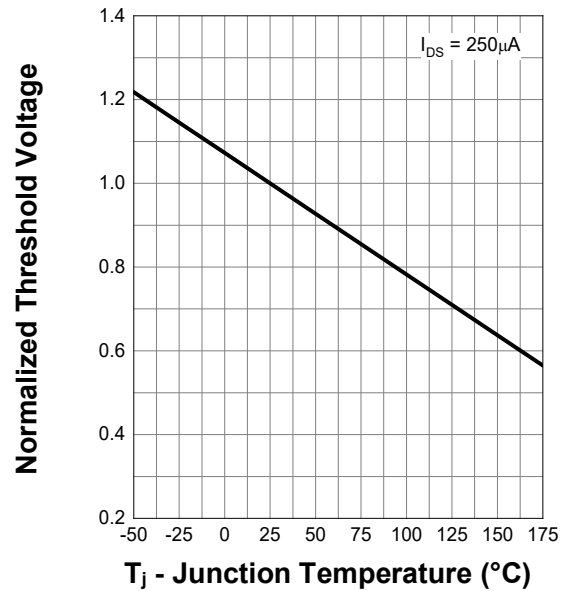
On Resistance



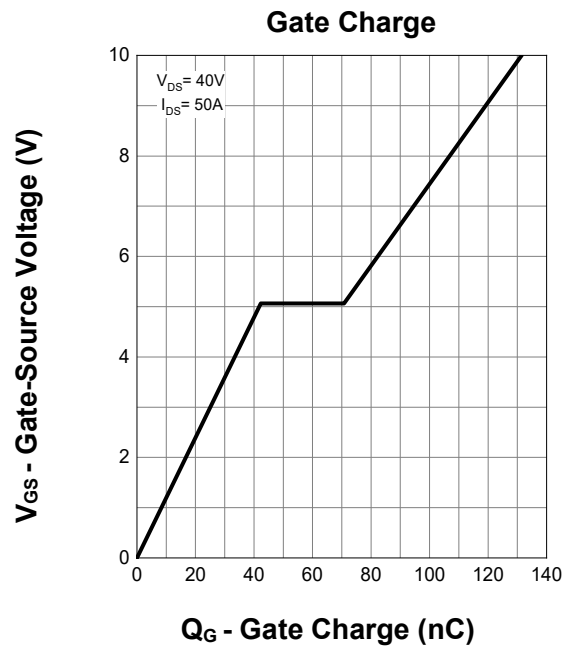
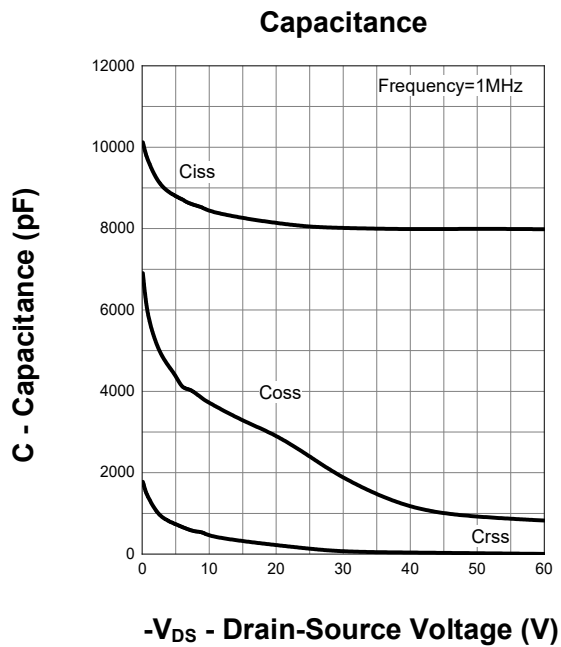
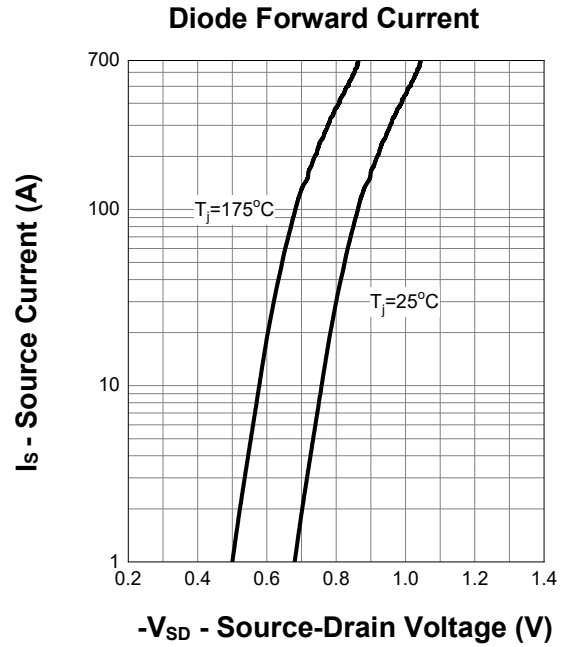
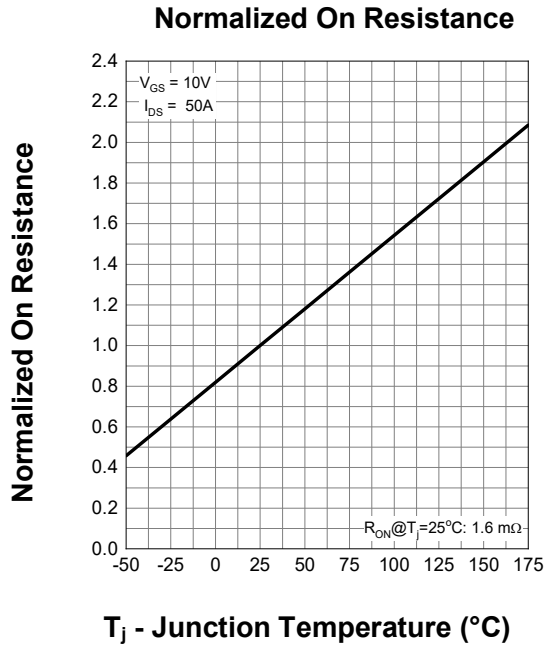
Transfer Characteristics



Normalized Threshold Voltage

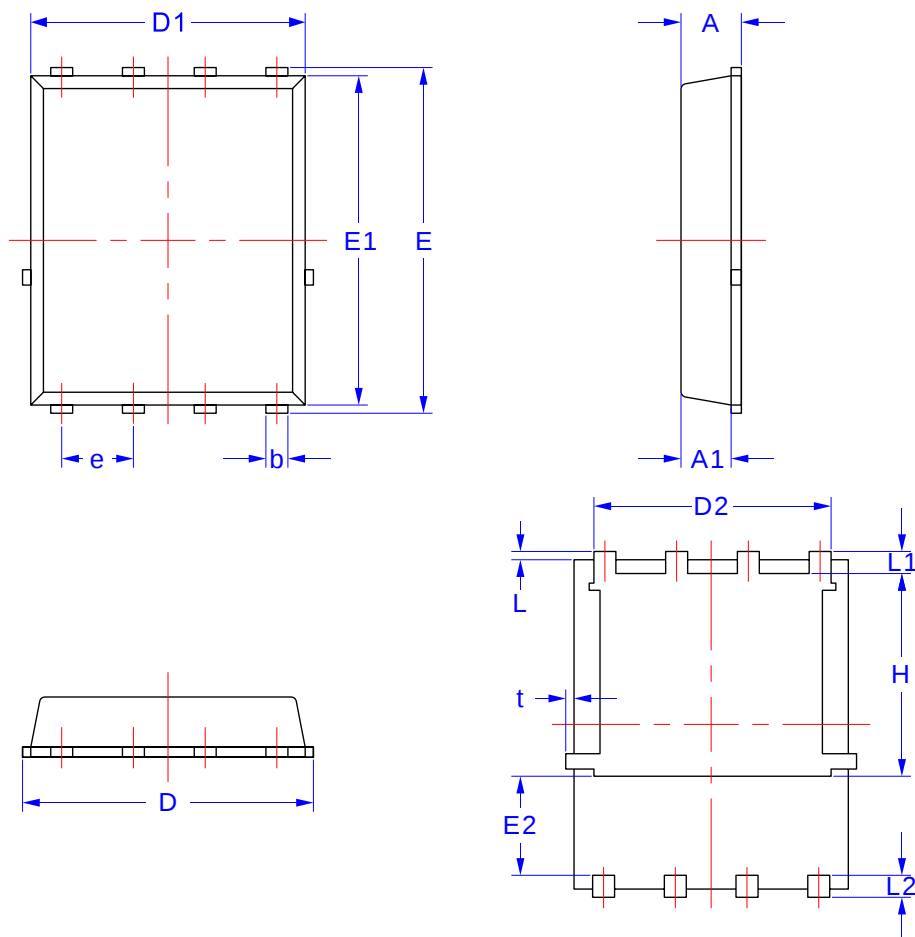


7. Typical Characteristics (Cont.)



8. Package Dimensions

PDFN 5x6-8L Package



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A	1.03	1.17	0.0406	0.0461
A1	0.82	0.97	0.0323	0.0382
b	0.34	0.48	0.0134	0.0189
D	4.80	5.40	0.1890	0.2126
D1	4.80	5.00	0.1890	0.1969
D2	4.11	4.31	0.1618	0.1697
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	-	0.0630	-
e	1.270 BSC		0.050 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
t	-	0.18	-	0.0070