

N-Channel Enhancement Mode MOSFET

1. Product Information

Features

- Surface-mounted package
- Excellent $R_{DS(ON)}$ and Switching Performance

Applications

- Drones
- Light electric vehicles
- High power inverter system

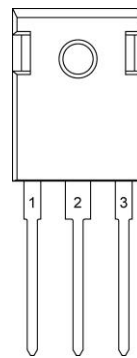
Quick reference

- $V_{DS} = 100\text{ V}$
- $P_D = 533\text{ W}$
- $I_D = 500\text{ A}$
- $R_{DS(ON)} \leq 1.5\text{ m}\Omega$ @ $V_{GS}=10\text{ V}$ (Type: 1.30 m Ω)
- $R_{DS(ON)} \leq 2.5\text{ m}\Omega$ @ $V_{GS}=10\text{ V}$ (Type: 1.85 m Ω)

Pin Description

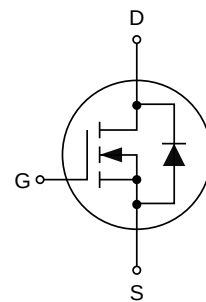
Pin	Description
1	Gate(G)
2	Drain(D)
3	Source(S)

Simplified Outline



Top View
TO-247-3L

Symbol



Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape Width	Quantity
KJ4468P	TO-247-3L	KJ4468 XXXXYY	-	-	300

2. Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Values	Unit
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current, $V_{GS}@10\text{ V}$, $T_C=25^\circ\text{C}$	500	A
	Continuous Drain Current, $V_{GS}@10\text{ V}$, $T_C=100^\circ\text{C}$	366	A
I_{DM}	Pulsed Drain Current	1200	A
P_D	Drain Power Dissipation	533	W
E_{AS}	Single Pulse Avalanche Energy	2900	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55~150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	32.8	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.45	$^\circ\text{C/W}$

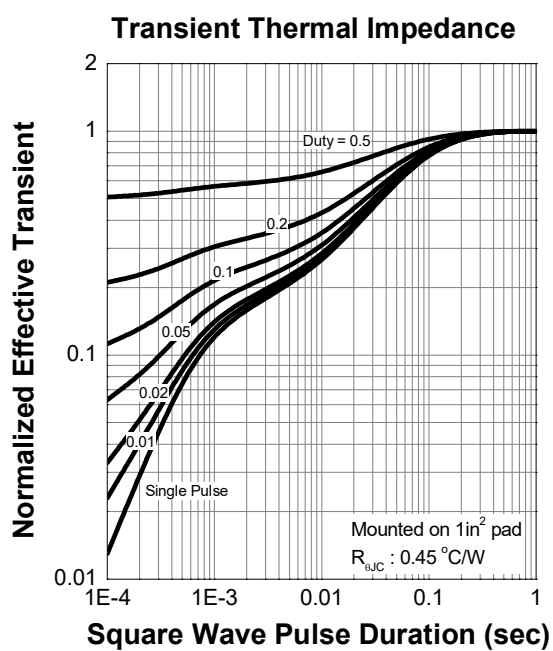
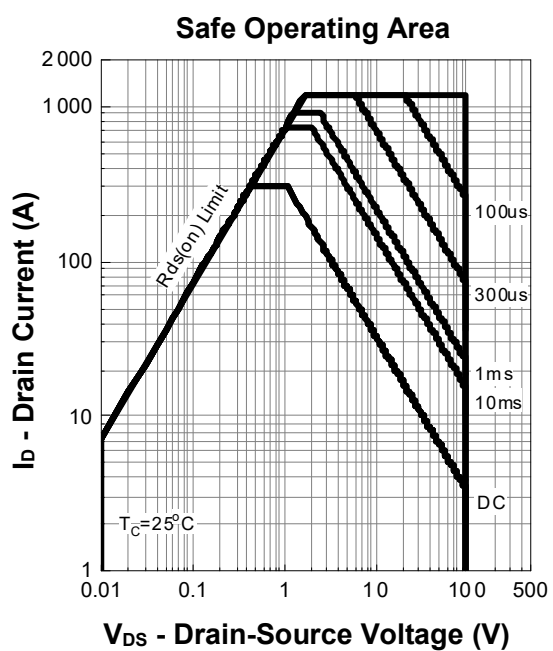
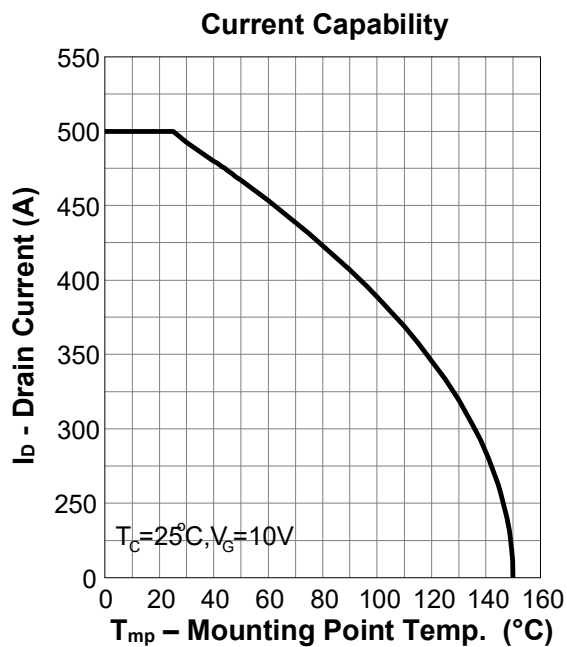
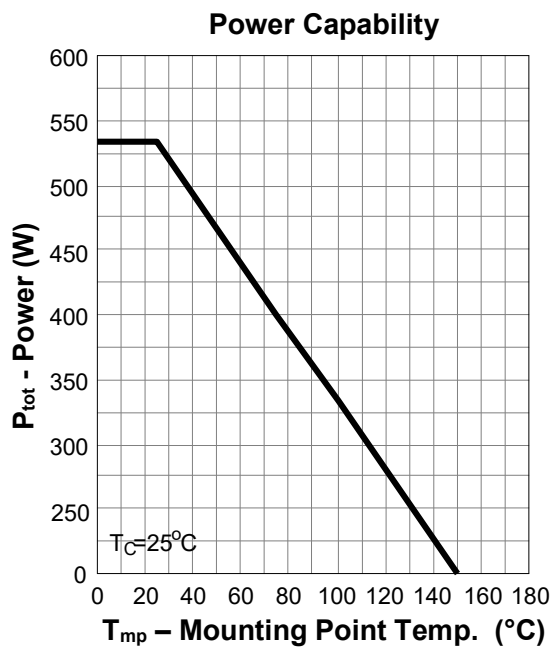
3. Electrical Characteristics (T_J=25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _{DS} =250 μA	100	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250 μA	2.0	-	4.0	V
I _{DSS}	Drain Leakage Current	V _{DS} =80 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	-	1.30	1.50	mΩ
		V _{GS} =6 V, I _{DS} =25 A	-	1.85	2.50	
V _{SD} ^a	Diode Forward Voltage	I _{SD} =50 A, V _{GS} =0 V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _{DS} =50 A, V _{GS} =0 V, dI/dt=100 A/μs	-	137	-	ns
Q _{rr}	Reverse Recovery Charge		-	347	-	nC
C _{iss}	Input Capacitance	V _{GS} =0 V, V _{DS} =50 V, Frequency=1 MHz	-	13574	-	pF
C _{oss}	Output Capacitance		-	2036	-	
C _{rss}	Reverse Transfer Capacitance		-	196	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =50 V, V _{GEN} =10 V, R _G =4.5 Ω, R _L =1 Ω, I _{DS} =50 A	-	44	-	ns
t _r	Turn-on Rise Time		-	132	-	
t _{d(off)}	Turn-off Delay Time		-	154	-	
t _f	Turn-off Fall Time		-	137	-	
Q _g	Total Gate Charge	V _{DS} =50 V, V _{GS} =10 V, I _{DS} =50 A	-	167	-	nC
Q _{gs}	Gate-Source Charge		-	71	-	
Q _{gd}	Gate-Drain Charge		-	58	-	

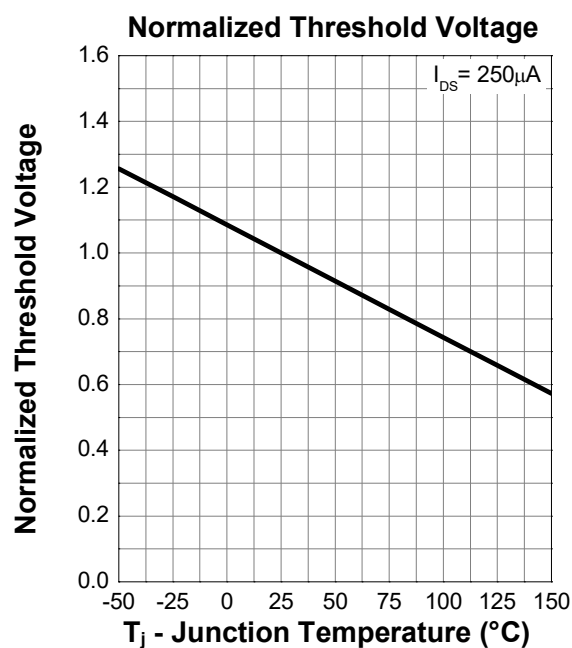
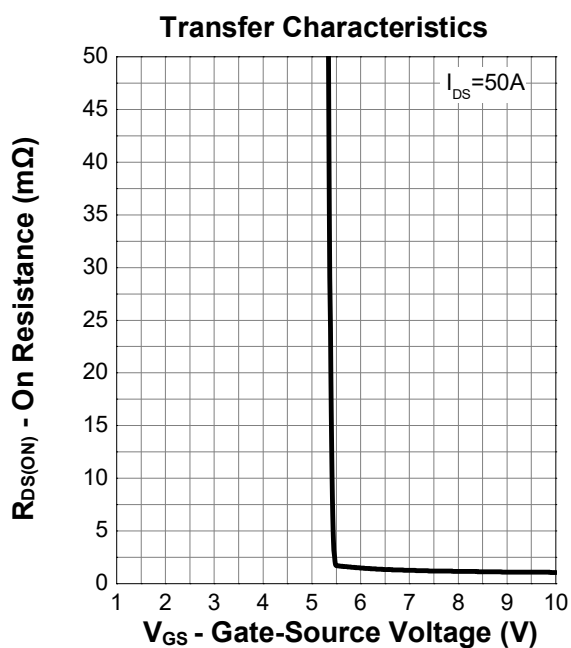
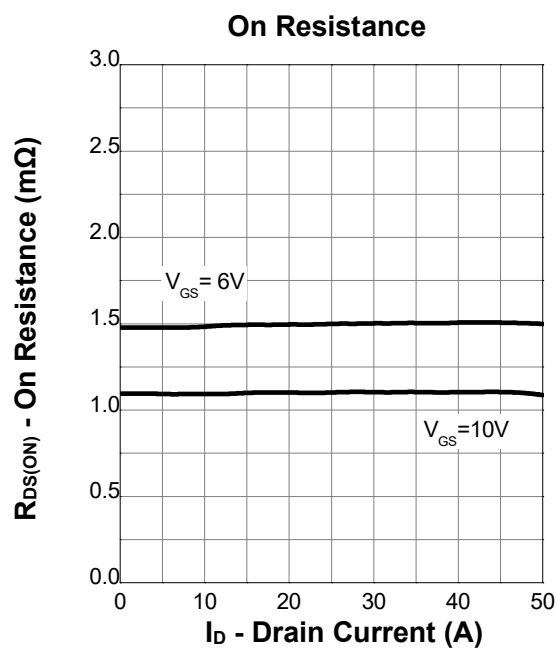
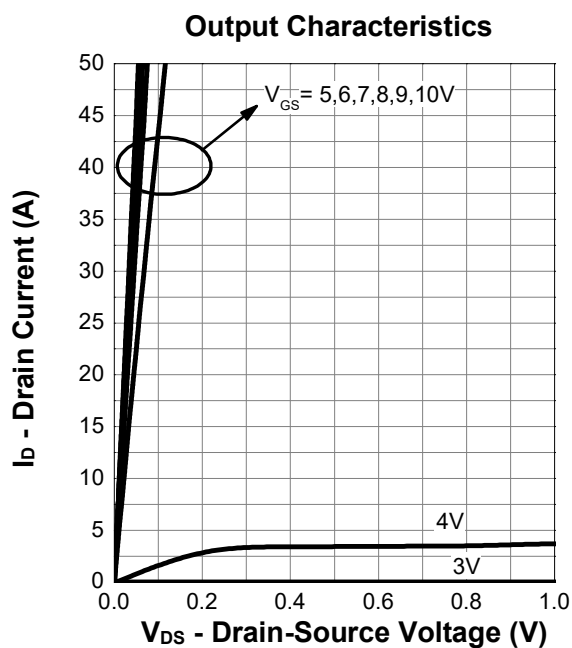
Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2 OZ copper.
2. The data tested by pulsed, pulse width ≤ 300 μs, duty cycle ≤ 2%
3. The E_{AS} data shows Max. rating. The test condition is T_J=25°C, L=1.0 mH, V_{DD}=50 V, V_{GS}=10 V
4. Guaranteed by design, not subject to production testing

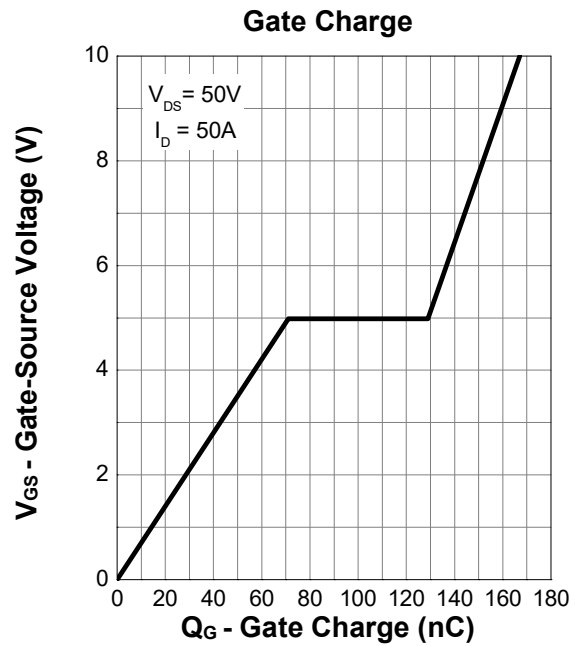
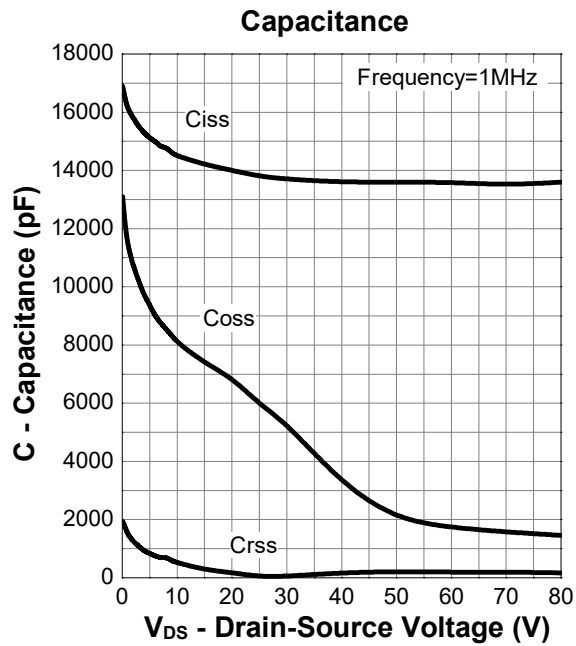
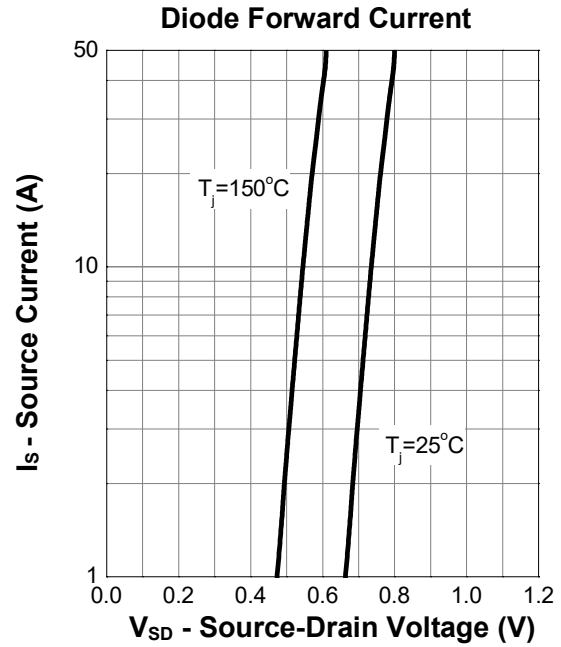
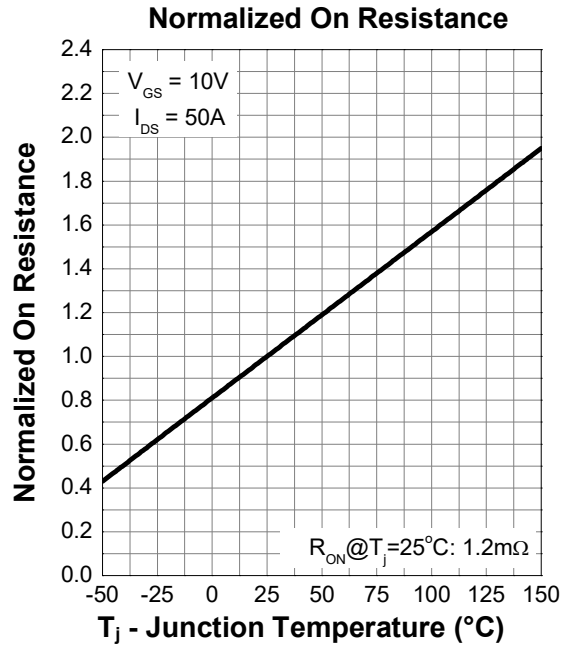
4. Typical Characteristics



4. Typical Characteristics (cont)

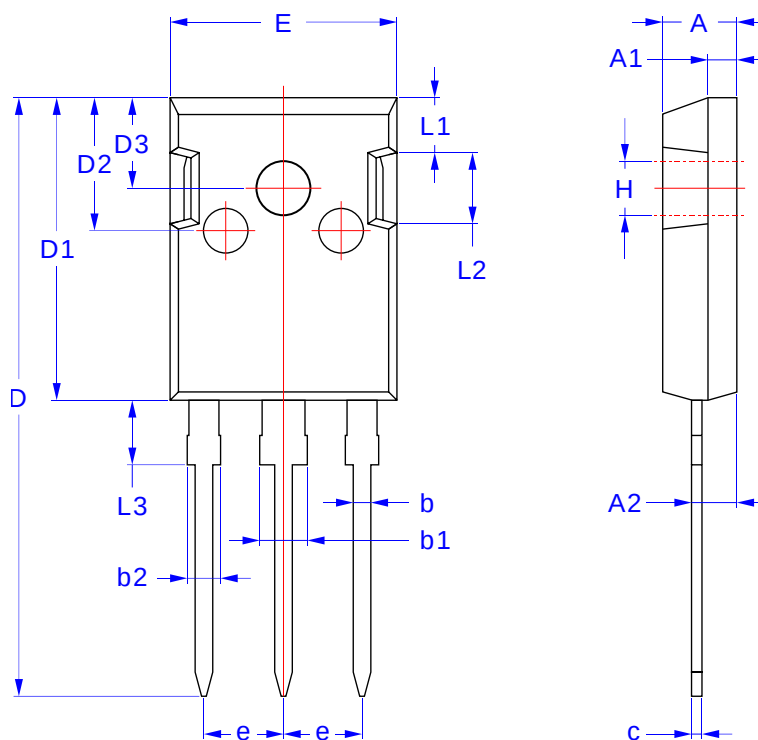


4. Typical Characteristics (cont)



5. Package Mechanical Data

TO-247-3L



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	4.90	5.10
A1	1.90	2.10
A2	2.00	3.00
b	0.55	0.75
b1	2.50	3.50
b2	1.75	2.50
c	1.20	1.30
D	41.00	42.00
D1	20.00	21.00
D2	8.00	10.00
D3	5.00	6.00
E	15.00	16.00
e	TYP 5.08	
H	3.00	3.50
L1	3.50	4.00
L2	4.75	5.25
L3	4.00	5.00