

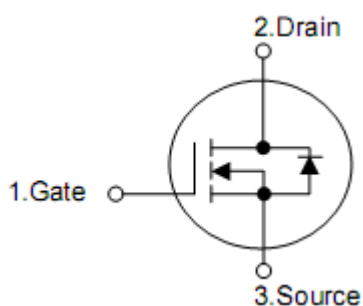
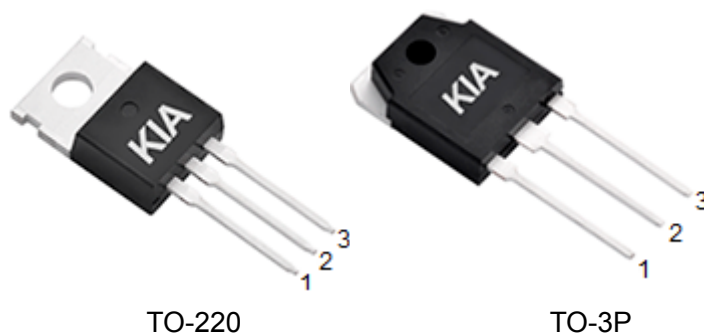
1. Features

- $R_{DS(ON)}=4.8m\Omega(\text{typ.}) @ V_{GS}=10V$
- Lead free and Green Device Available
- Low Rds-on to Minimize Conductive Loss
- High avalanche Current

2. Applications

- Power switching application
- Hard switched and High frequency circuits
- Uninterruptible power supply

3. Symbol



Pin	Function
1	Gate
2	Drain
3	Source

4. Ordering Information

Part Number	Package	Brand
KNP2908D	TO-220	KIA
KNH2908D	TO-3P	KIA

5. Absolute maximum ratings

(T_A=25°C, unless otherwise noted)

Parameter		Symbol	Rating	Units
Drain-source voltage		V _{DS}	80	V
Gate-source voltage		V _{GS}	±25	V
Continuous drain current ³⁾	T _C =25°C	I _D	130	A
	T _C =100°C	I _D	95	A
Pulsed drain current (@T _C =25°C) ⁴⁾		I _{DM}	500	A
Avalanche Current ⁵⁾		I _{AS}	30	A
Single pulse avalanche energy		E _{AS}	900	mJ
Total power dissipation	T _C =25°C	P _D	246	W
	T _C =100°C	P _D	150	W/°C
Operation junction and temperature range		T _J , T _{STG}	-55 to 175	°C

6. Thermal characteristics

Parameter	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	R _{θJC}	0.78	°C/W
Thermal resistance, Junction to ambient	R _{θJA}	62.5	°C/W

7. Electrical characteristics

(T_A=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	80	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =64V, V _{GS} =0V	-	-	1	μA
		V _{DS} =64V, T _J =125°C	-	-	10	uA
Gate to source leakage current	I _{GSS}	V _{GS} =±25V, V _{DS} =0V	-	-	±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2	3	4	V
Drain-source on-Resistance ¹⁾	R _{DS(on)}	V _{GS} =10V, I _D =50A,	-	4.8	6	mΩ
Gate resistance	R _G	V _{DS} =0V, V _{GS} =0V, f=1MHz	-	1.7	-	Ω
Total gate charge	Q _g	V _{DS} =64V, V _{GS} =10V, I _D =60A ²⁾	-	110	-	nC
Gate-source charge	Q _{gs}		-	16	-	
Gate-drain charge	Q _{gd}		-	45	-	
Turn-on delay time	t _{d(on)}	V _{DD} =60V, I _D =40A, R _G =6Ω, V _{GS} =10V ²⁾	-	25	-	ns
Rise time	t _r		-	16	-	
Turn-off delay time	t _{d(off)}		-	40	-	
Fall time	t _f		-	52	-	
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz ²⁾	-	4500	-	pF
Output capacitance	C _{oss}		-	640	-	
Reverse transfer capacitance	C _{rss}		-	230	-	
Continuous source current ³⁾	I _S	—	-	-	130	A
Diode Forward voltage ¹⁾	V _{SD}	V _{GS} =0V, I _S =130A	-	-	1.3	V
Reverse recovery time	t _{rr}	I _F =30A, V _{GS} =0V, dI _F /dt=100A/us	-	30	-	ns
Reverse recovery charge	Q _{rr}		-	52	-	nC

Note

1) Pulse test; pulse width≤300us, duty cycle≤2%.

2) Guaranteed by design, not subject to production testing.

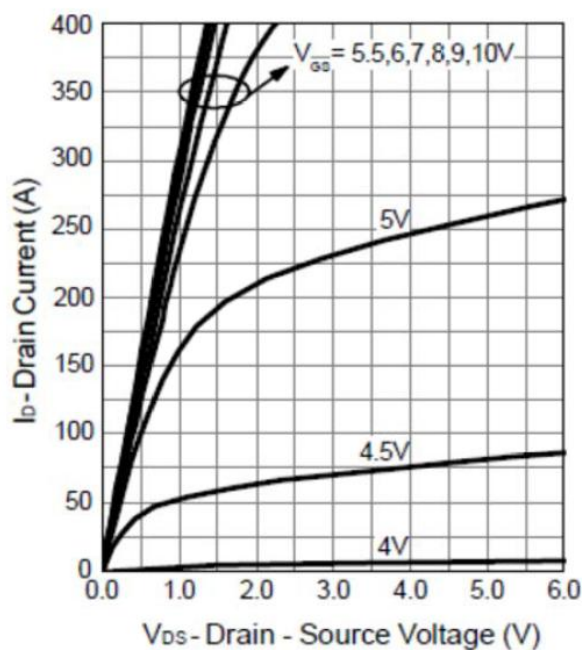
3) Package limitation current is 55A. Calculated continuous current based on maximum allowable junction temperature.

4) Repetitive rating, pulse width limited by max junction temperature.

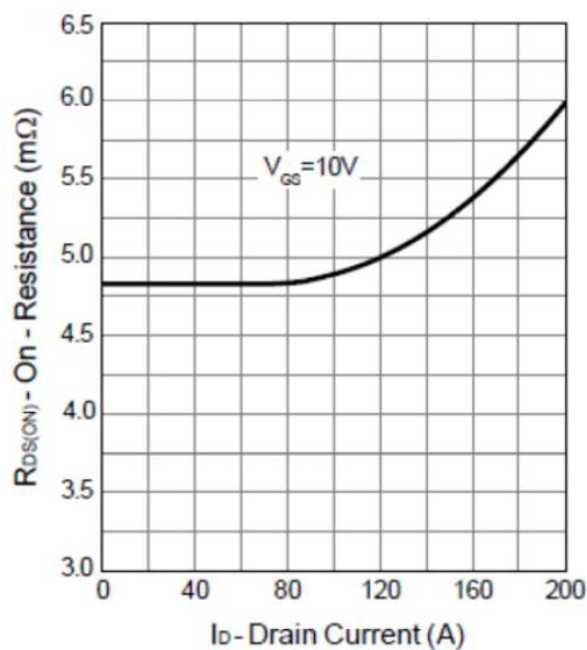
5) Starting T_J=25°C, L=0.5mH, V_{DD}=64V, I_{AS}=64A.

8. Typical operating characteristics

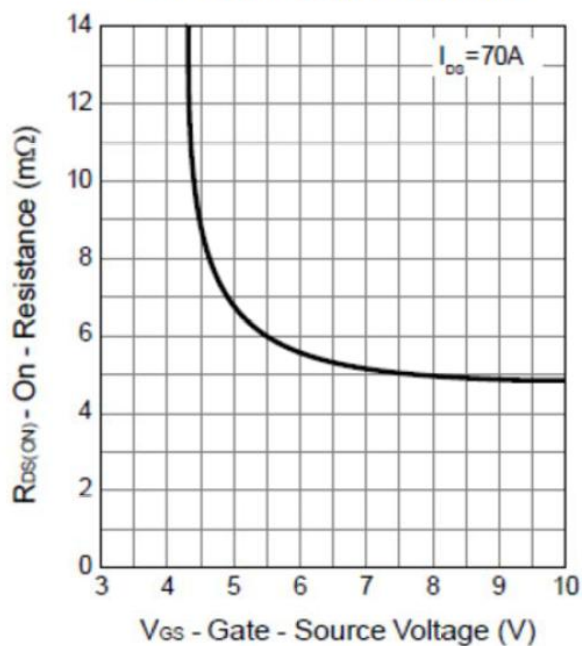
Output Characteristics



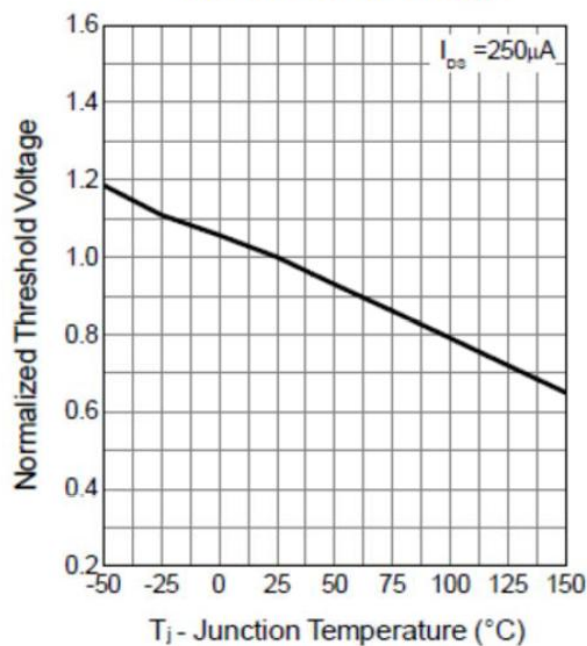
Drain-Source On Resistance



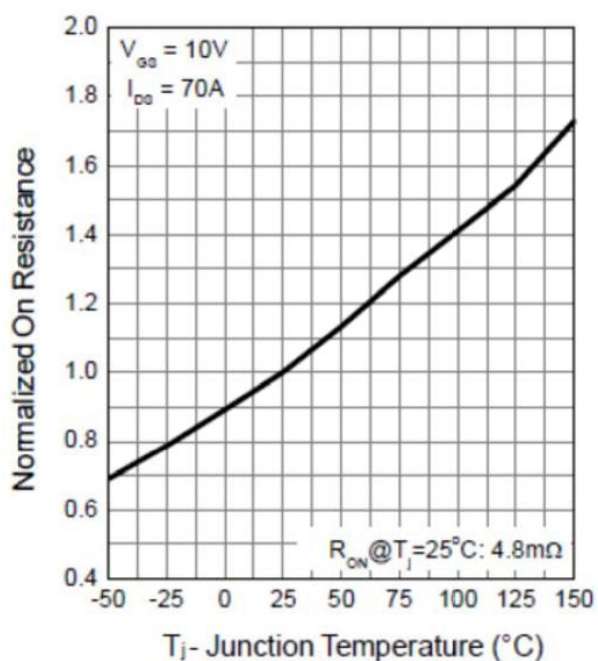
Gate-Source On Resistance



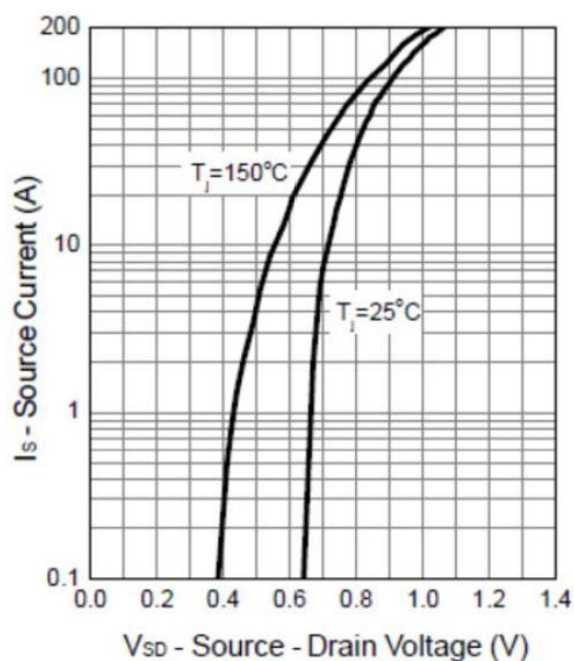
Gate Threshold Voltage



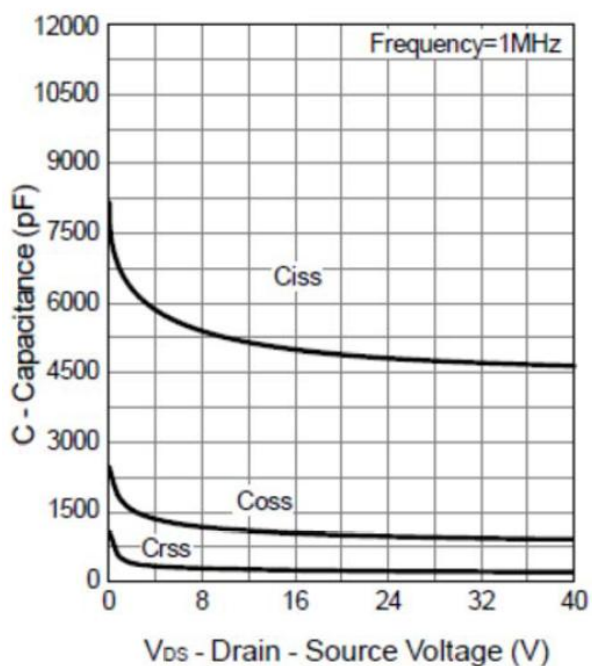
Drain-Source On Resistance



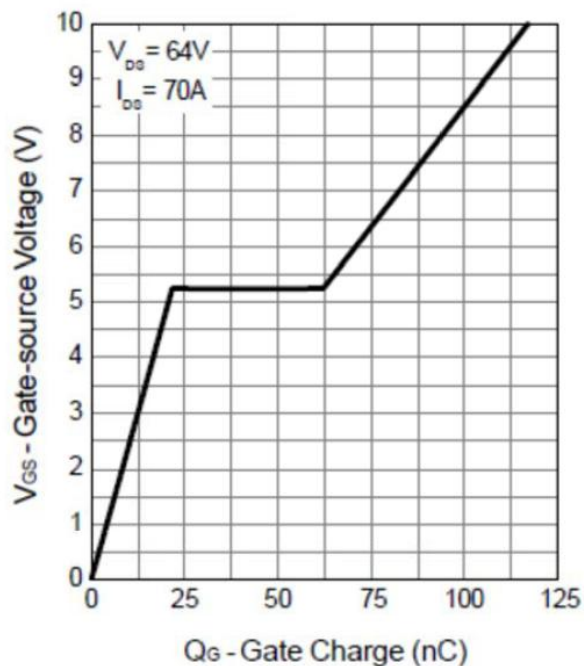
Source-Drain Diode Forward



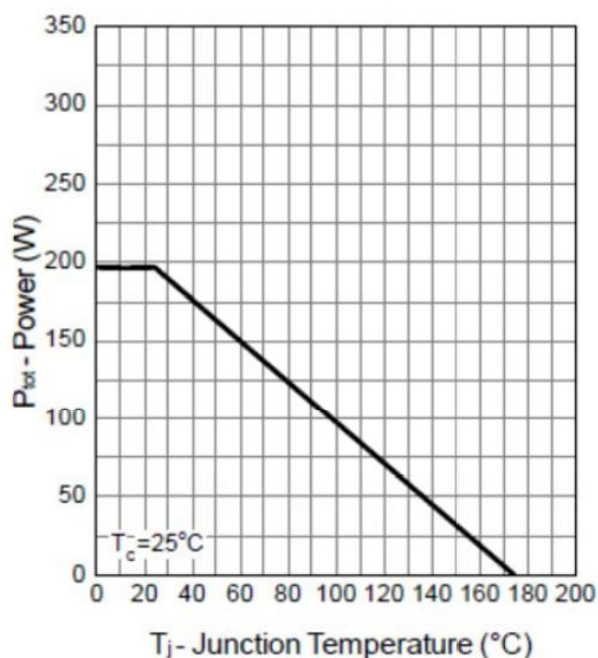
Capacitance



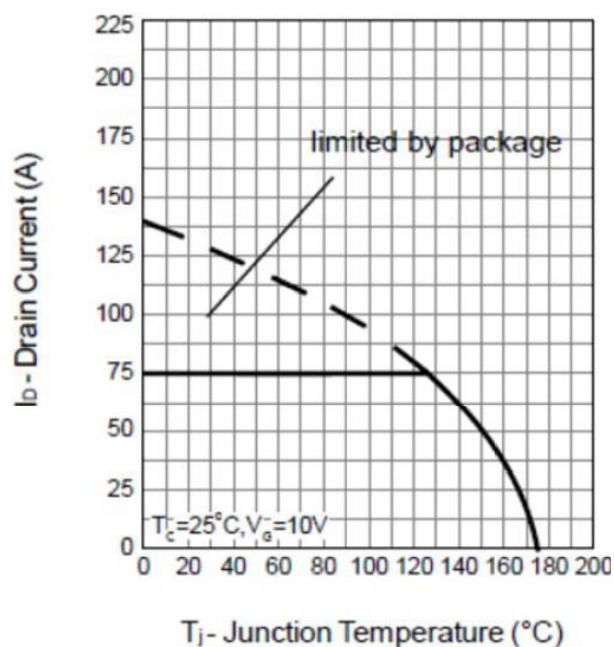
Gate Charge



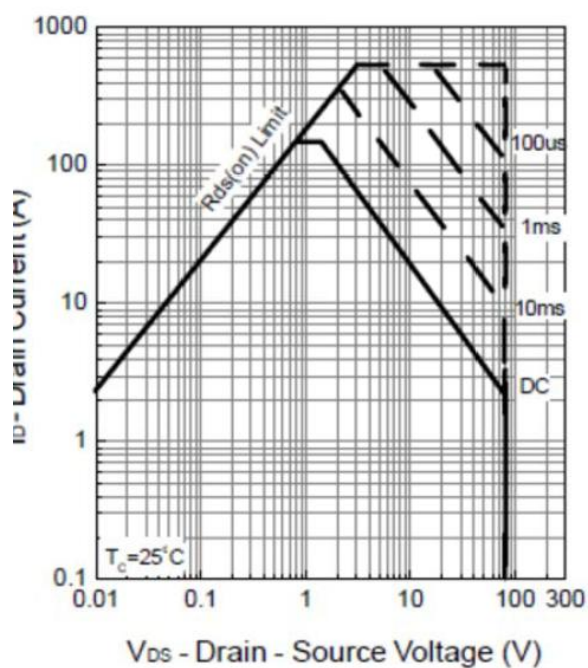
Power Dissipation



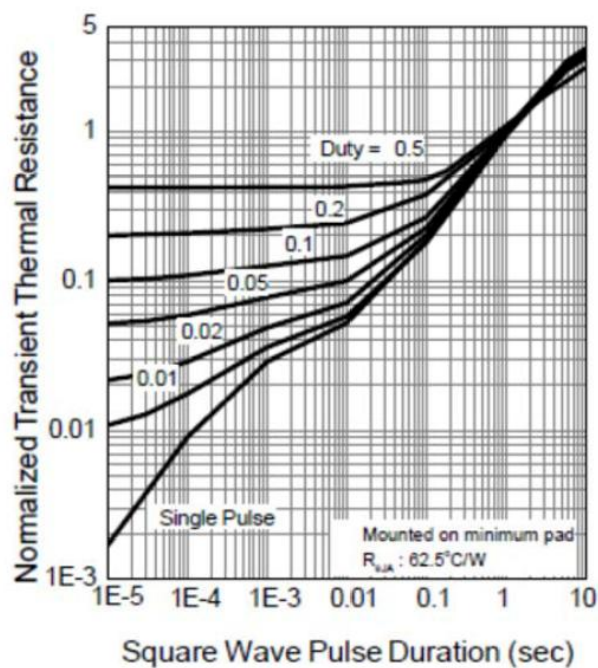
Drain Current



Safe Operation Area



Thermal Transient Impedance



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