KIA
SEMICONDUCTORS

70A，80V
N-CHANNEL MOSFET

3508A

1. Features

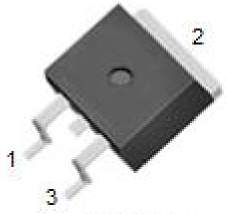
- $R_{DS(on)}$=7.5mΩ（typ.）@ V_{GS}=10V
- 100% avalanche tested
- Reliable and rugged
- Lead free and green device available（RoHS Compliant）

2. Applications

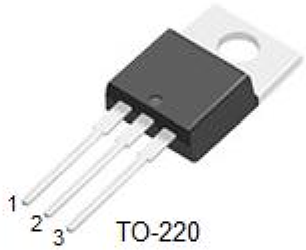
- Switching application
- Power management for inverter systems

3.Symbol

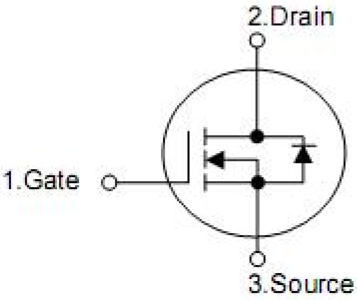
TO-252



TO-263



TO-220



Pin	Function
1	Gate
2	Drain
3	Source

4. Ordering Information

Part Number	Package	Brand
KND3508A	TO-252	KIA
KNB3508A	TO-263	KIA
KNP3508A	TO-220	KIA

5. Absolute maximum ratings

(T_A=25°C,unless otherwise noted)

Parameter		Symbol	Rating		Units
			TO-220/263	TO-252	
Drain-source voltage		V_{DSS}	80		V
Gate-source voltage		V_{GSS}	±25		V
Maximum junction temperature		T_J	175		ºC
Storage temperature range		T_{STG}	-55 to175		ºC
Continuous drain current	T_C=25ºC	I_D [3]	70	60	A
	T_C=100ºC		46	36	A
Pulsed drain current	T_C=25ºC	I_{DP}	240		A
Avalanche current		I_{AS}	70		A

6. Electrical characteristics

(T_A=25°C,unless otherwise noted)

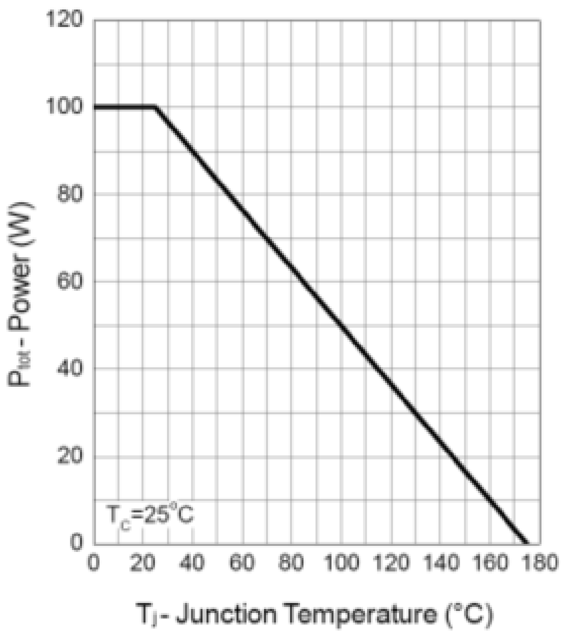
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=250uA	80	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=24V, V_{GS}=0V	-	-	1	μA
		T_J=85°C	-	-	30	
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.0	3.0	4.0	V
Gate leakage current	I_{GSS}	V_{GS}=±25V, V_{DS}=0V	-	-	±100	nA
Drain-source on-state resistance	$R_{DS(on)}$	V_{GS}=10V,I_{DS}=35A	-	7.5	9	mΩ
Gate resistance	R_g	V_{DS}=0V, V_{GS}=0V,f=1MHz	-	1.5	-	Ω
Diode forward voltage	V_{SD}	I_{SD}=20A, V_{GS}=0V	-	0.8	1.3	V
Reverse recovery time	t_{rr}	I_{SD}=35A , dI_{SD}/dt=100A/μs	-	44	-	nS
Reverse recovery charge	Q_{rr}		-	60	-	nC
Input capacitance	C_{iss}	V_{DS}=30V,V_{GS}=0V, f=1MHz	-	2900	-	pF
Output capacitance	C_{oss}		-	290	-	
Reverse transfer capacitance	C_{rss}		-	175	-	
Turn-on delay time	$t_{d(on)}$	V_{DD}=30V,I_{DS}=1A, R_L=30Ω,V_{GEN}=-10V R_G=6Ω	-	14	-	ns
Rise time	t_r		-	11	-	
Turn-off delay time	$t_{d(off)}$		-	51	-	
Fall time	t_f		-	22	-	
Total gate charge	Q_g	V_{DS}=30V,V_{GS}=10V I_{DS}=35A	-	55	-	nC
Gate-source charge	Q_{gs}		-	12	--	
Gate-drain charge	Q_{gd}		-	16	--	

Note : 1. Pulse test; pulse width≤300us duty cycle≤2%.

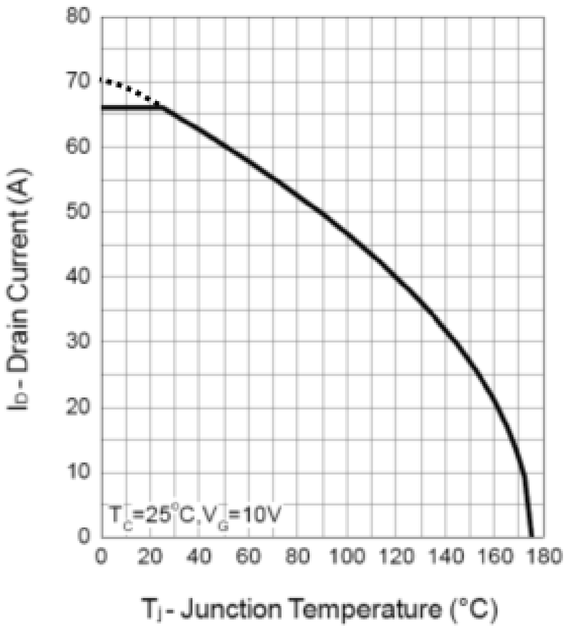
2. Guaranteed by design, not subject to production testing.

7. Test circuits and waveforms

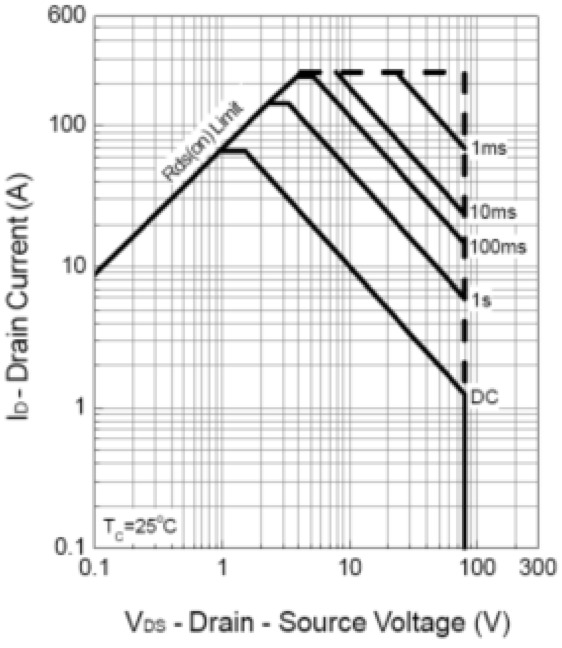
Power Dissipation



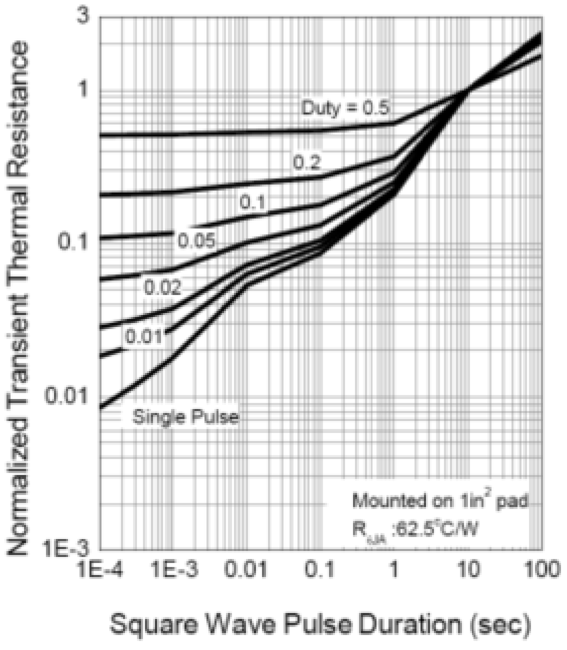
Drain Current



Safe Operation Area



Thermal Transient Impedance



Output Characteristics

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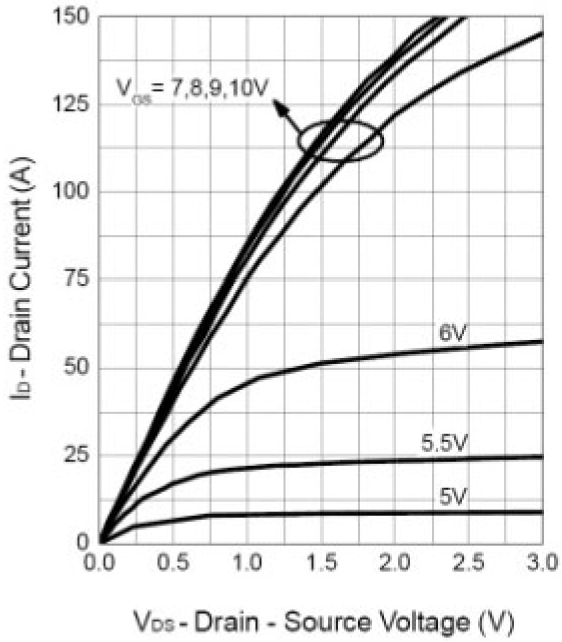

Drain-Source On Resistance

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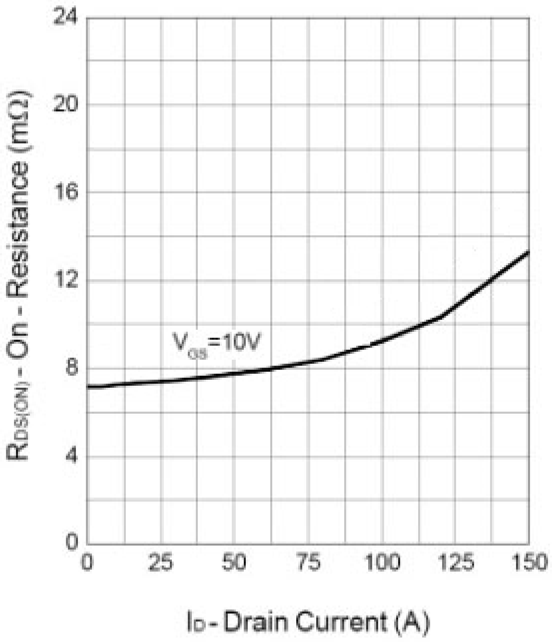
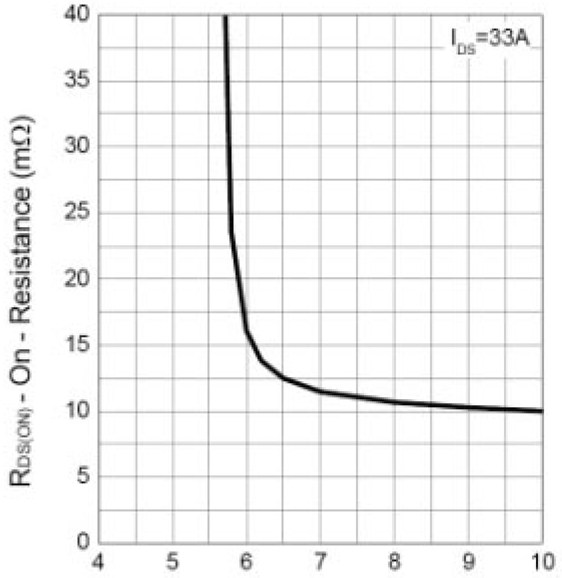
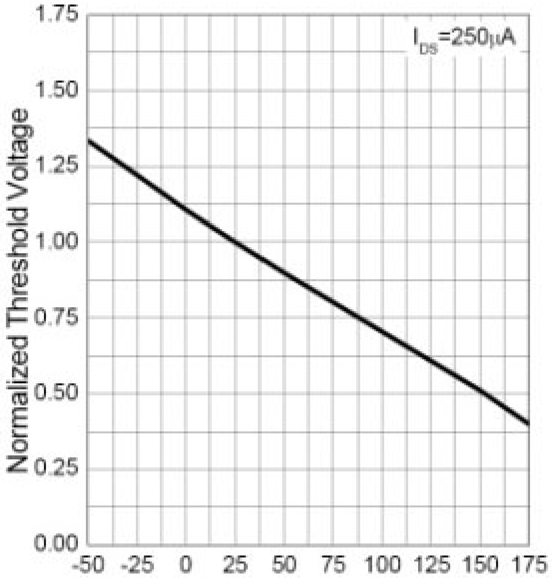


Gate-Source On Resistance



Gate Threshold Voltage



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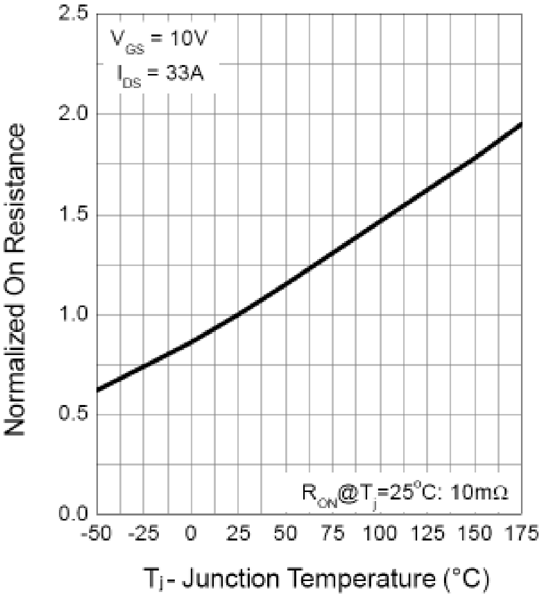
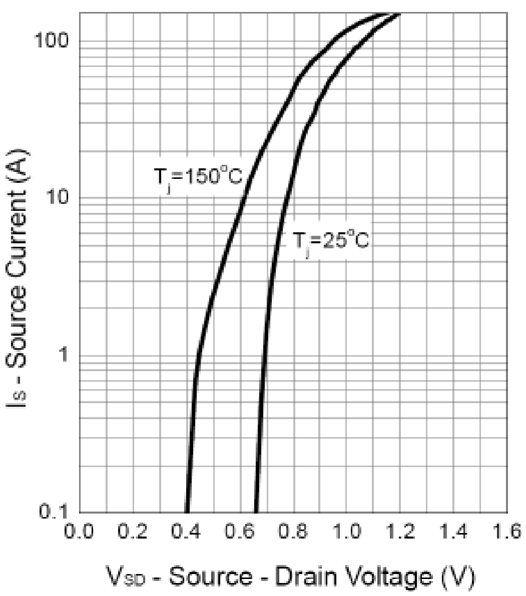
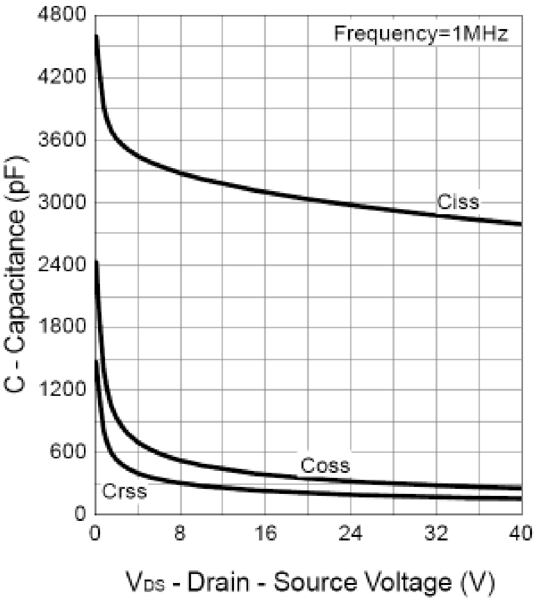


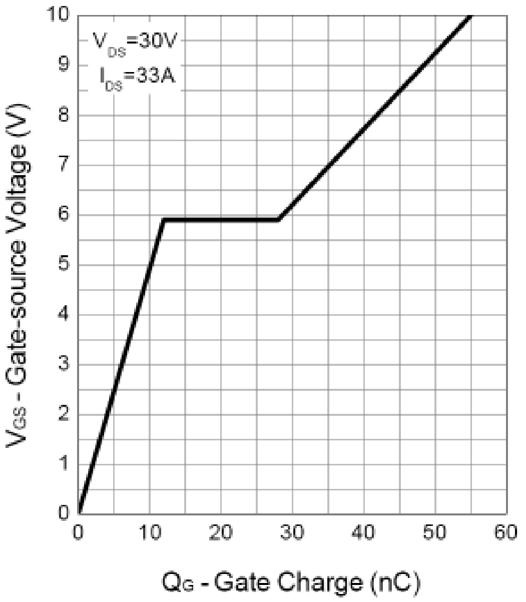
Source-Drain Diode Forward



Capacitance



Gate Charge



8. Switching Time Test Circuit and Waveforms