

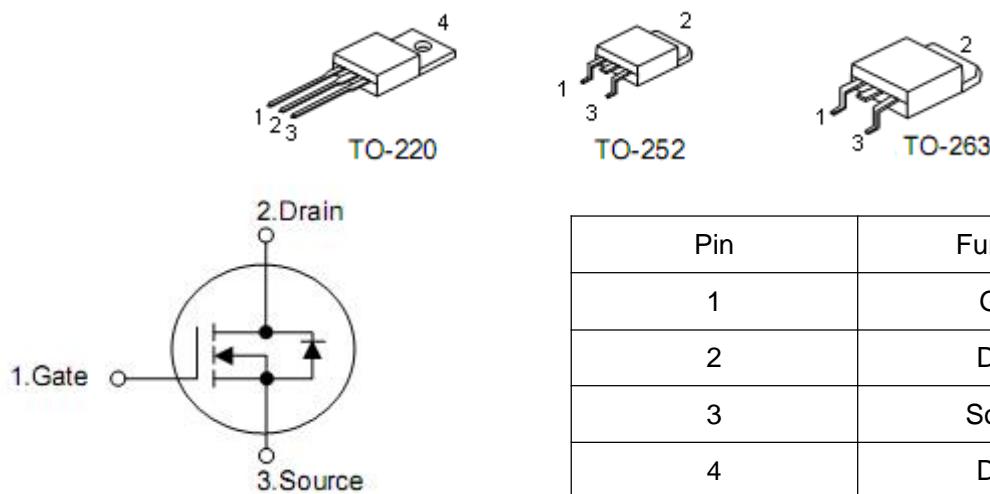
1. Features

- $R_{DS(on)}=9.5\text{m}\Omega$ (typ.) @ $V_{GS}=10\text{V}$
- 100% avalanche tested
- Reliable and rugged
- Lead free and green device available (RoHS Compliant)

2. Applications

- Switching application
- Power management for inverter systems

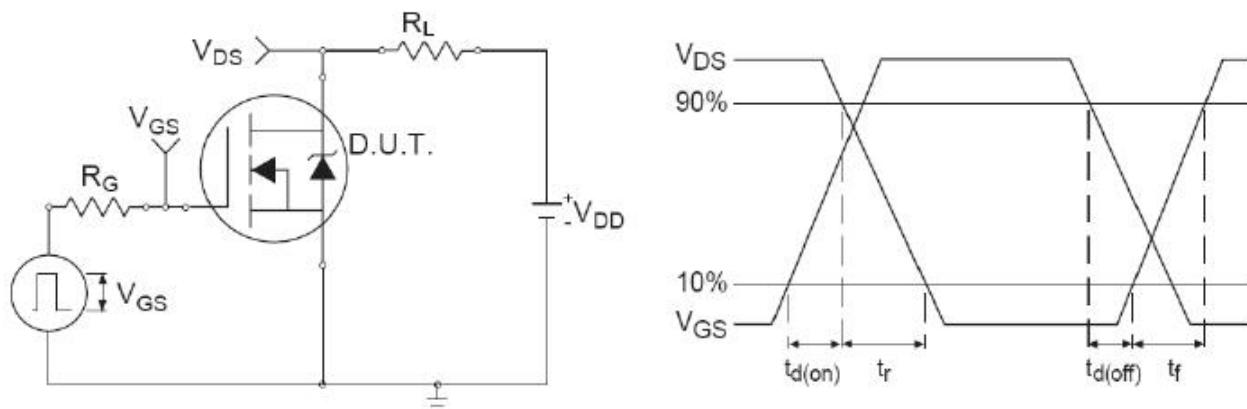
3. Symbol



4. Ordering Information

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

5. Switching Time Test Circuit and Waveforms



5. Absolute maximum ratings

($T_A=25^\circ\text{C}$, 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		$^\circ\text{C}$
Storage temperature range	T_{STG}	$-55 \text{ to } 175$		$^\circ\text{C}$
Continuous drain current	$T_C=25^\circ\text{C}$	I_D^3	70	A
	$T_C=100^\circ\text{C}$		46	A
Pulsed drain current	$T_C=25^\circ\text{C}$	I_{DP}	240	A
Avalanche current	I_{AS}		70	A

6. Electrical characteristics

($T_A=25^\circ C$, unless otherwise noted)

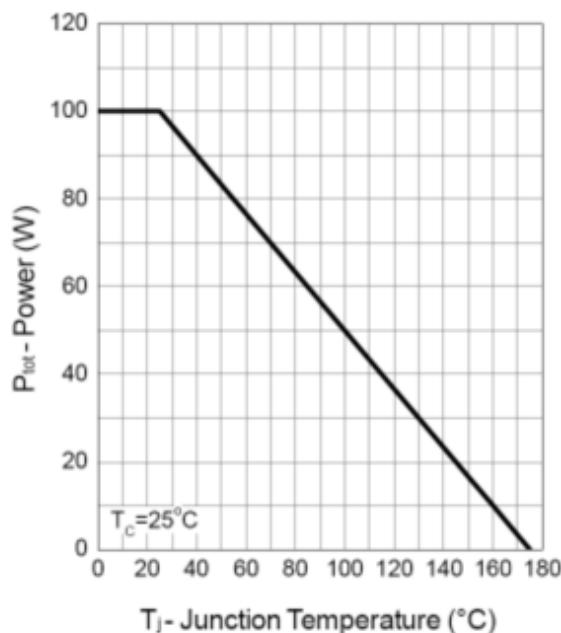
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV_{DSS}	$V_{GS}=0V, I_{DS}=250\mu A$	80	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$	-	-	1	μA
		$T_J=85^\circ C$	-	-	30	
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	3.0	4.0	V
Gate leakage current	I_{GSS}	$V_{GS}=\pm 25V, V_{DS}=0V$	-	-	± 100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS}=10V, I_{DS}=35A$	-	9.5	11	$m\Omega$
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}	$I_{SD}=35A, dI_{SD}/dt=100A/\mu s$	-	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	$t_{d(on)}$	$V_{DD}=30V, I_{DS}=1A, R_L=30\Omega, V_{GEN}=-10V, R_G=6\Omega$	-	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 $\leq 300\mu s$ duty cycle $\leq 2\%$.

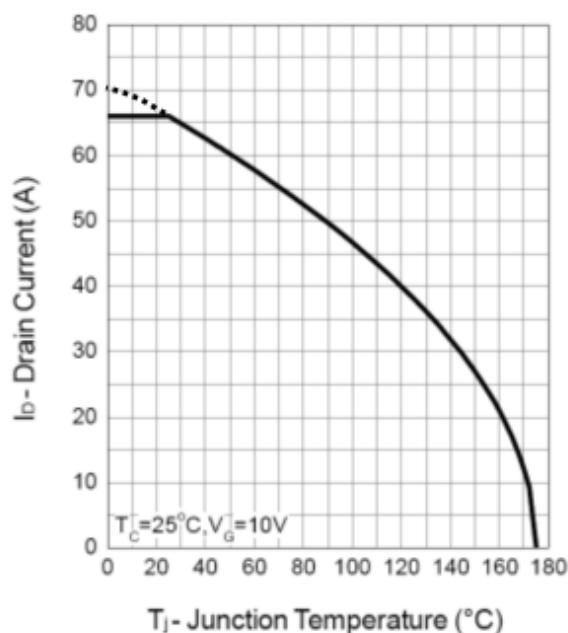
2. Guaranteed by design, not subject to production testing.

7. Test circuits and waveforms

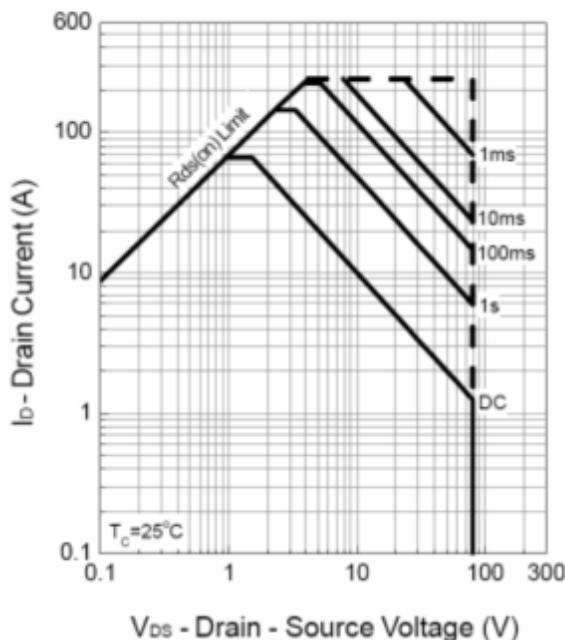
Power Dissipation



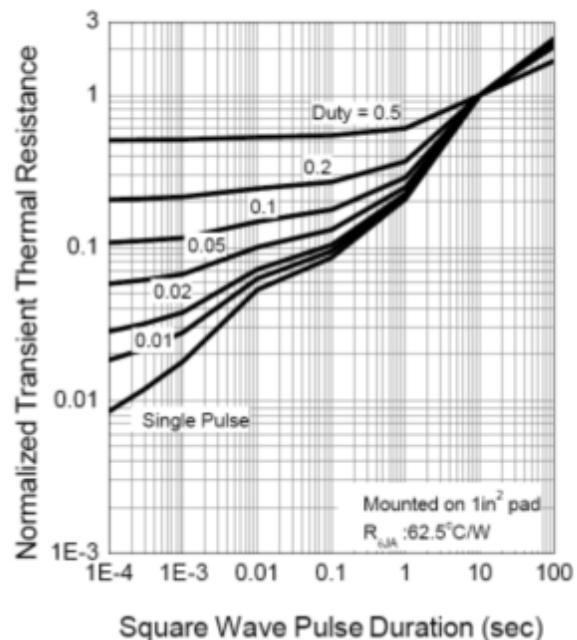
Drain Current



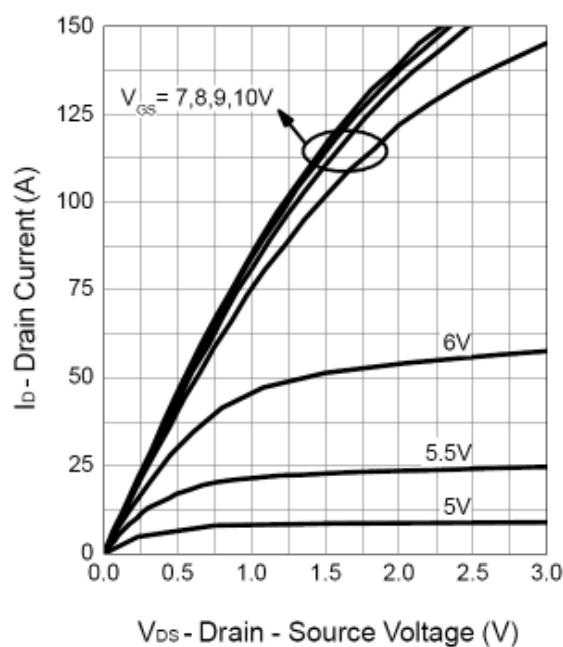
Safe Operation Area



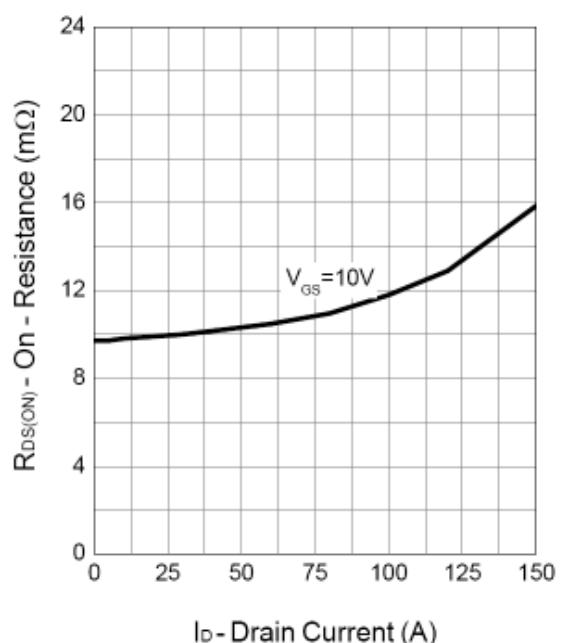
Thermal Transient Impedance



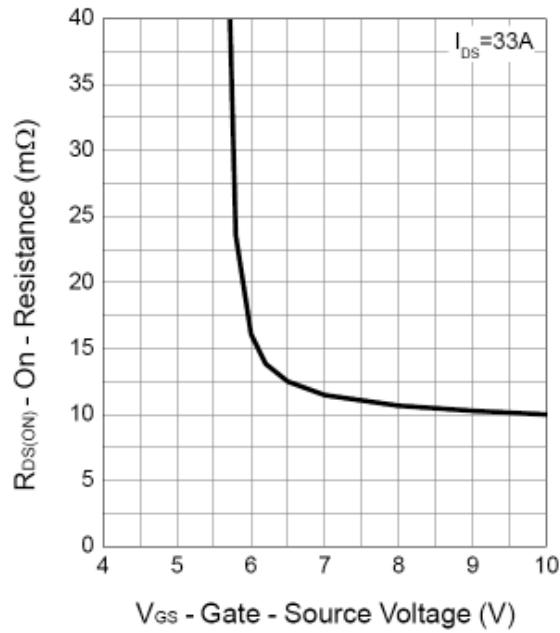
Output Characteristics



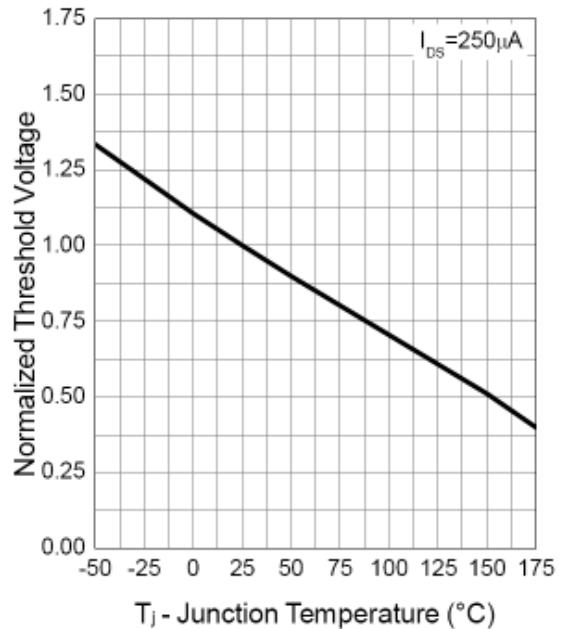
Drain-Source On Resistance



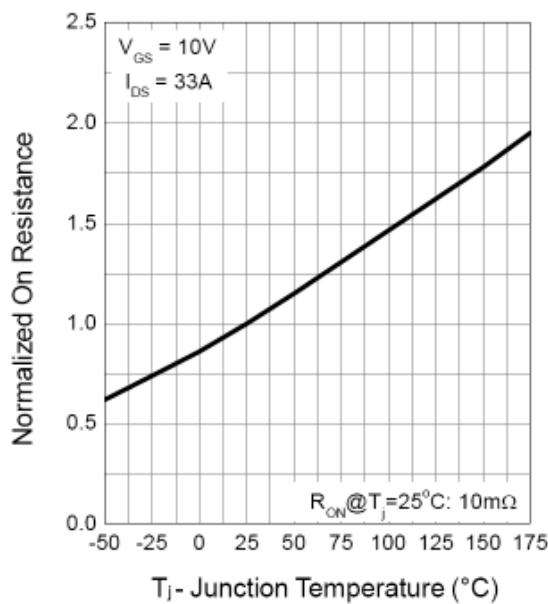
Gate-Source On Resistance



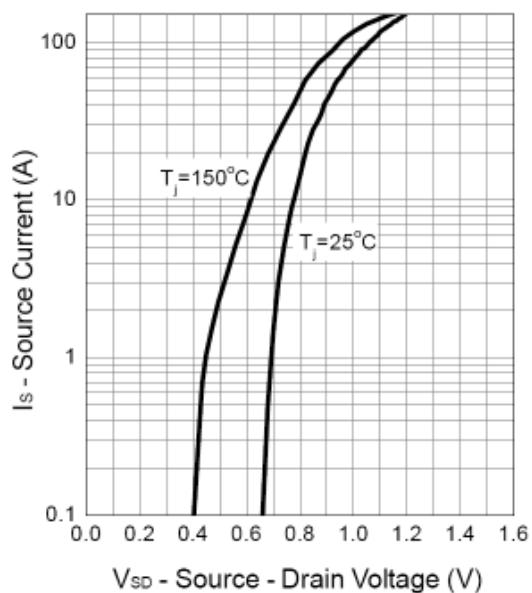
Gate Threshold Voltage



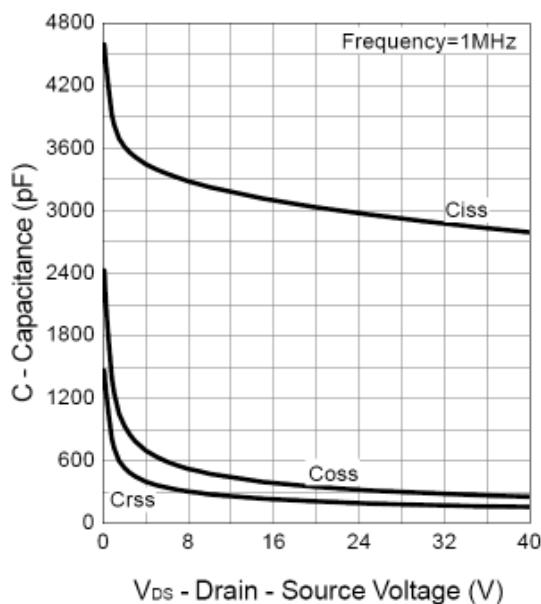
Drain-Source On Resistance



Source-Drain Diode Forward



Capacitance



Gate Charge

