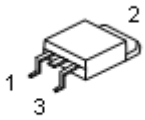
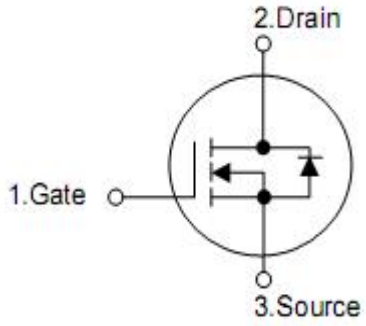
1. Features

- $R_{DS(ON)}$=140mΩ(Typ.)@V_{GS}=10V
- N-Channel, Logic level 5V
- Enhancement mode
- Fast Switching
- Pb-free lead plating; RoHS compliant

2.Symbol



TO-252



Pin	Function
1	Gate
2	Drain
3	Source

3. Maximum ratings，at T_J=25℃，unless otherwise specified

Parameter		Symbol	Rating	Units
Drain-source breakdown voltage		V_{DSS}	100	V
Gate-source voltage T_C=25°C		V_{GS}	±20	V
Diode continuous forward current		I_S	9	A
Continuous drain current , V_{GS}@10V	T_C=25°C	I_D	9	A
	T_A=100°C		5.8	
Pulsed drain current tested[1] T_C=25°C		I_{DM}	36	
Maximum power dissipation	T_A=25°C	P_D	45	W
Avalanche engergy , single pulsed[2] L=0.5mH		E_{AS}	20.25	mJ
Storage and operating temperature range		T_{STG} T_J	-55 to150	ºC

4. Thermal characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal resistance junction-case	$R_{\theta JC}$	-	2.78	ºC/W
Thermal resistance junction-ambient	$R_{\theta JA}$	-	62.5	

5. Ordering information

Part number	Package
KND4810A	TO-252

6. Electrical characteristics

(T_C=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	100	-	-	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS}=10V,I_D=6A	-	140m	160m	Ω
		V_{GS}=4.5V,I_D=5A	-	150m	180m	
Gate threshold voltage	$V_{GS(TH)}$	V_{DS}= V_{GS},I_D=250uA	1.0	1.8	3.0	V
Zero gate voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V T_C=25°C	-	-	1	μA
		V_{DS}=100V, V_{GS}=0V T_C=125°C	-	-	100	
Gate-source forward leakage	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Total gate charge	Q_g	V_{DS}=50V, I_D=10A V_{GS}=10V	-	14	-	nC
Gate-source charge	Q_{gs}		-	3.5	-	
Gate-drain charge	Q_{gd}		-	1.8	-	
Turn-on delay time	$t_{d(on)}$	V_{DD}=50V, I_D=10A, R_G=10Ω,V_{GS}=10V	-	12.6	-	ns
Rise time	t_r		-	4.2	-	
Turn-off delay time	$t_{d(off)}$		-	32	-	
Fall time	t_f		-	4.6	-	
Input capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V f=1MHz	-	950	-	pF
Output capacitance	C_{oss}		-	43	-	
Reverse transfer capacitance	C_{rss}		-	22	-	
Diode forward voltage	V_{SD}	I_{SD}=2A, V_{GS}=0V	-	0.71	1.3	V
Max.diode forward current	I_S		-	-	10	A

Note:

1. Repetitive rating; pulse width limitad by max. junction temperature.
2. Limited by T_{JMAX},starting T_J=25 ºC,L=0.5mH,R_G=25Ω,I_{AS}=9A,V_{GS}=10V,Part not recommended for use above this value.
3. Pulse width ≤300us;duty cycle ≤2%

7. Typical operating characteristics

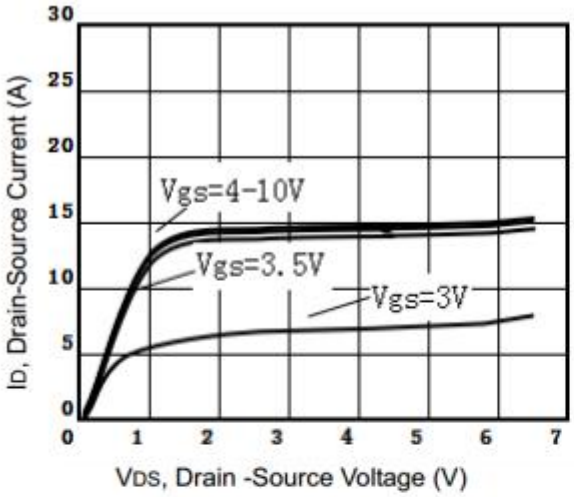


Fig1. Typical Output Characteristics

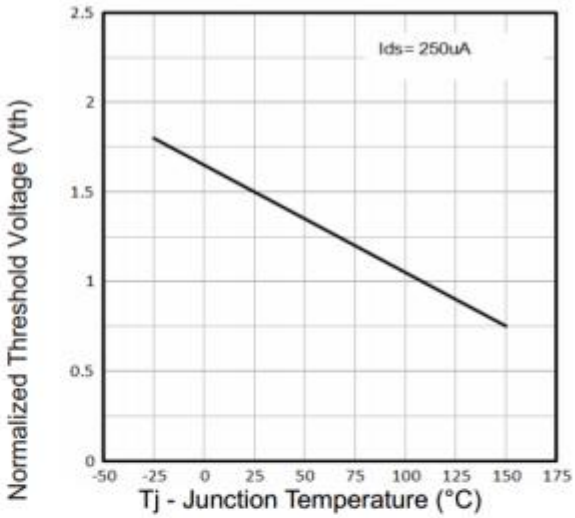


Fig2. Normalized Threshold Voltage Vs. Temperature

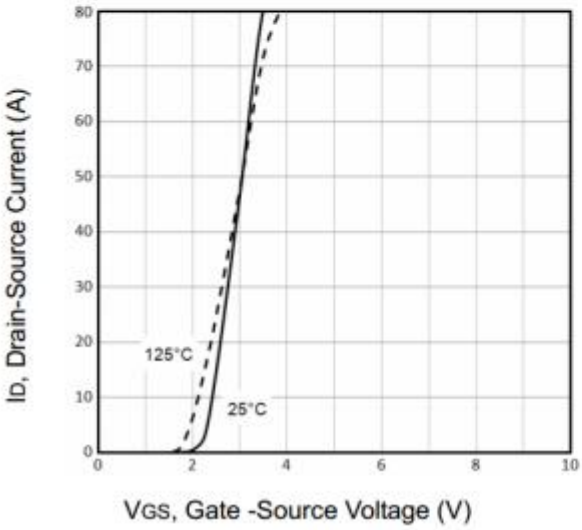


Fig3. Typical Transfer Characteristics

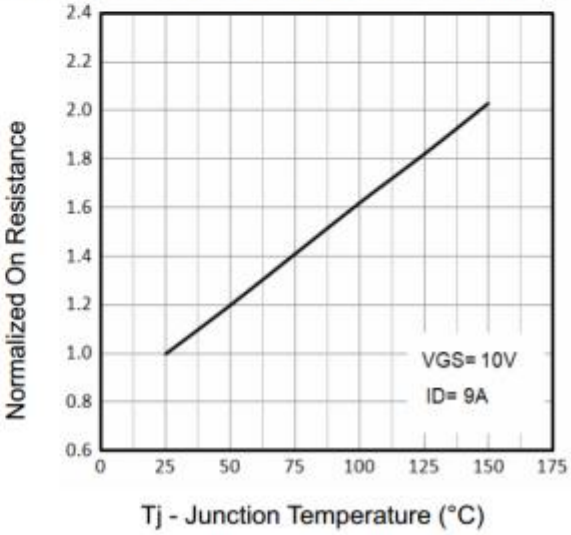


Fig4. Normalized On-Resistance Vs. Temperature

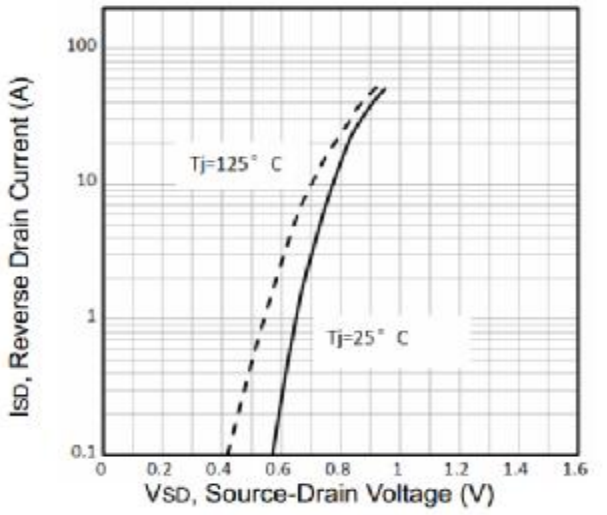


Fig5. Typical Source-Drain Diode Forward Voltage

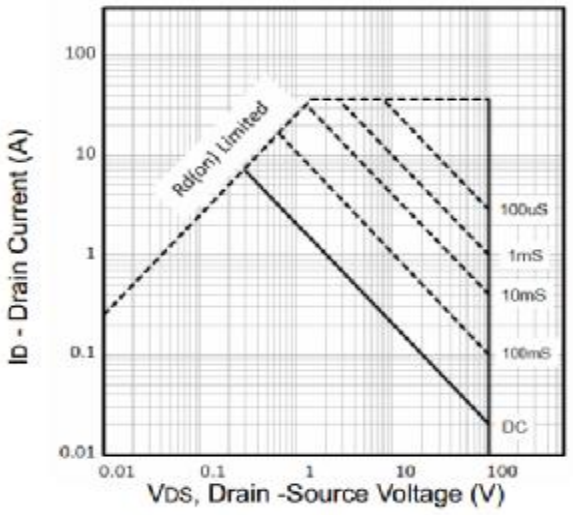


Fig6. Maximum Safe Operating Area

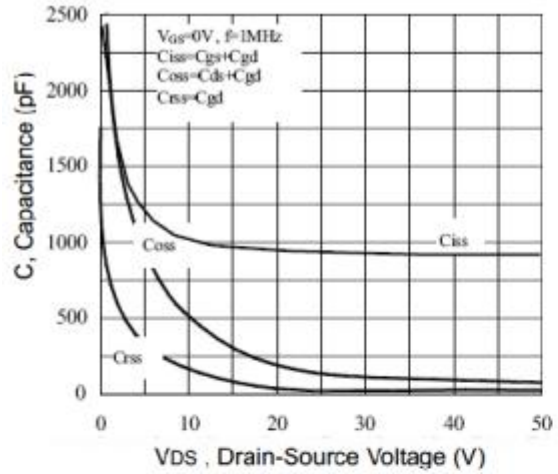


Fig7. Typical Capacitance Vs.Drain-Source Voltage

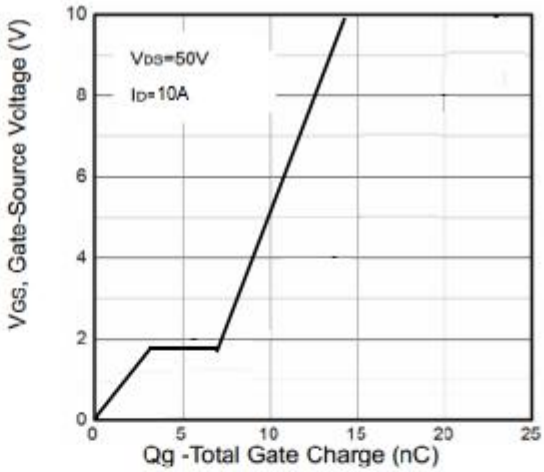


Fig8. Typical Gate Charge Vs.Gate-Source

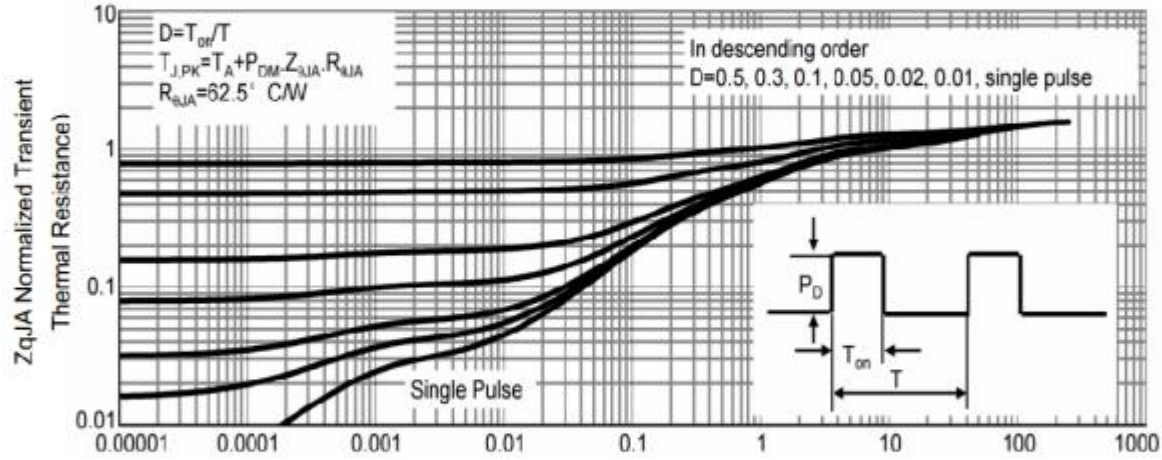


Fig9. Normalized Maximum Transient Thermal Impedance

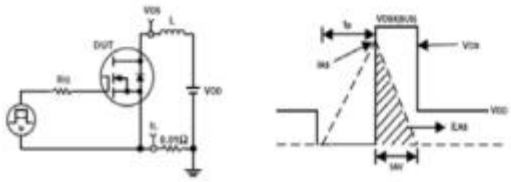


Fig10. Unclamped Inductive Test Circuit and waveforms

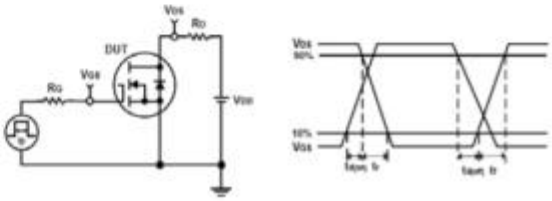


Fig11. Switching Time Test Circuit and waveforms