

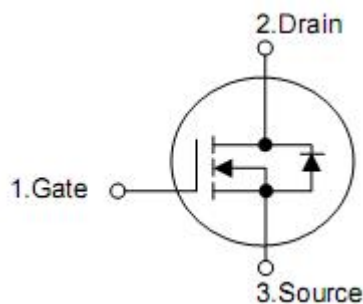
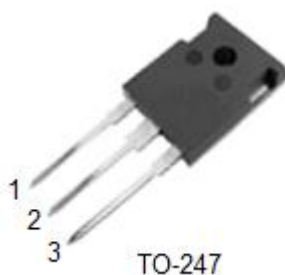
1.Features

- n** RoHS Compliant
- n** $R_{DS(ON),typ.}=2.4\Omega@V_{GS}=10V$
- n** Low Gate Charge Minimize Switching Loss
- n** Fast Recovery Body Diode

2.Applications

- n** High Voltage Power Supplies
- n** Capacitor Discharge
- n** Pulse Circuits

3. Pin configuration



Pin	Function
1	Gate
2	Drain
3	Source

4. Ordering Information

Part Number	Package	Brand
KNM62150A	TO-247	KIA

5. Absolute maximum ratings

(T_C= 25°C , unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-to-Source Voltage		V _{DSS}	1500	V
Gate-to-Source Voltage		V _{GSS}	±30	
Continuous Drain Current		I _D	11	A
Pulsed Drain Current at V _{GS} =10V		I _{DM}	44	
Single Pulse Avalanche Energy		E _{AS}	350	mJ
Maximum Power Dissipation	T _C =25°C	P _D	312	W
	Derate above 25°C		2.5	W/°C
Soldering Temperature Distance of 1.6mm from case for 10 seconds		T _L	300	°C
Storage Temperature Range		T _J &T _{STG}	-55 to 150	

Caution: Stresses greater than those listed in the “Absolute Maximum Ratings” may cause permanent damage to the device.

6. Thermal characteristics

Parameter	Symbol	Rating	Unit
Thermal Resistance, Junction-to-Case	R _{θJC}	0.4	°C/W
Thermal Resistance, Junction-to-Ambient	R _{θJA}	50	°C/W

7. Electrical characteristics

(T_J=25°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	1500	-	-	V
Drain-source leakage current	I _{DSS}	V _{DS} =1500V, V _{GS} =0V	-	-	1	uA
		V _{DS} =1200V, T _C =125°C			500	uA
Gate-source forward leakage	I _{GSS}	V _{GS} =±30V, V _{DS} =0V	-	-	±100	nA
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =5.5A	-	2.4	3.2	Ω
Gate threshold voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250uA	2.5	-	4.5	V
Gate Resistance	R _g	f=1 MHz Gate DC Bias=0, Test signal level=20mV open drain	-	1.19	-	Ω
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V f=1MHz	-	3876	-	pF
Reverse transfer capacitance	C _{rss}		-	170	-	pF
Output capacitance	C _{oss}		-	195	-	pF
Total gate charge(10V)	Q _g	V _{DD} =750V, I _D =11A V _{GS} =0~10V	-	83.2	-	nC
Gate-source charge	Q _{gs}		-	21.6	-	nC
Gate-drain charge	Q _{gd}		-	25.4	-	nC
Turn-on delay time	t _{d(on)}	V _{DD} =750V, V _{GS} =10V, R _G =25Ω, I _D =11A		62		ns
Rise time	t _r			188		ns
Turn-off delay time	t _{d(off)}			120		ns
Fall time	t _f			158		ns
Continuous Source Current ²⁾	I _{SD}	Integral PN-diode in MOSFET			11	A
Pulsed Source Current ²⁾	I _{SM}		-	-	44	A
Diode forward voltage	V _{SD}	I _S =11A, V _{GS} =0V,	-	-	1.5	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _F =11A, dI _F /dt=100A/μs	-	449	-	nS
Reverse Recovery Charge	Q _{rr}		-	3.58	-	nC

Note:

1) T_J=+25°C to +150°C

2) Pulse width≤380us; duty cycle≤2%.

8. Test circuits and waveforms

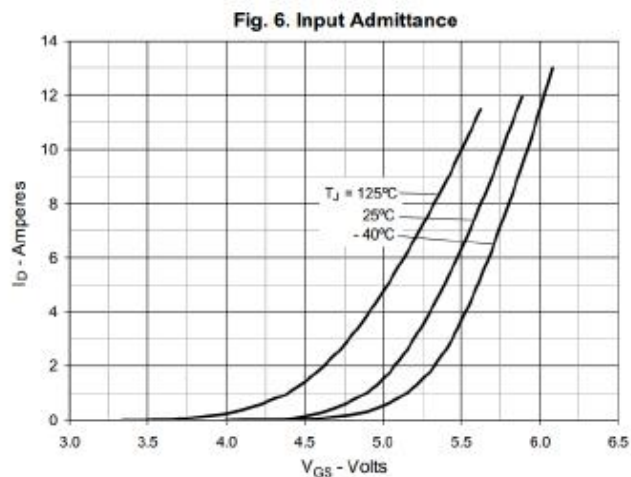
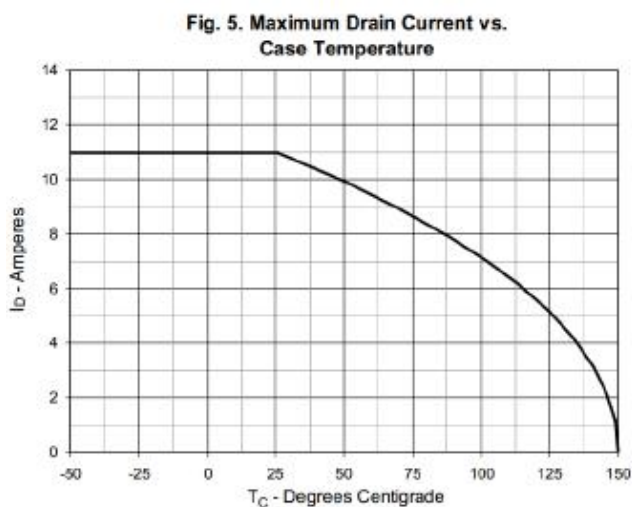
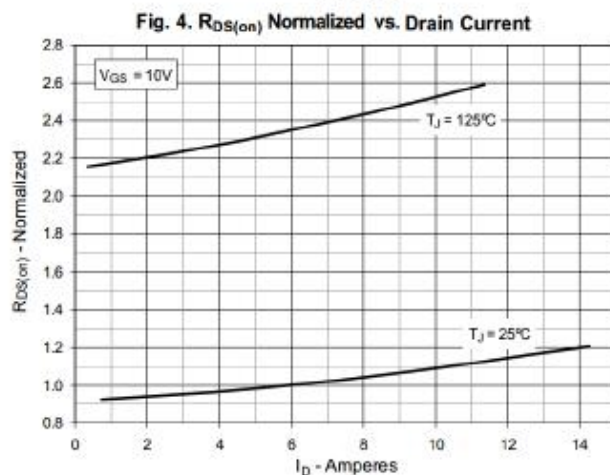
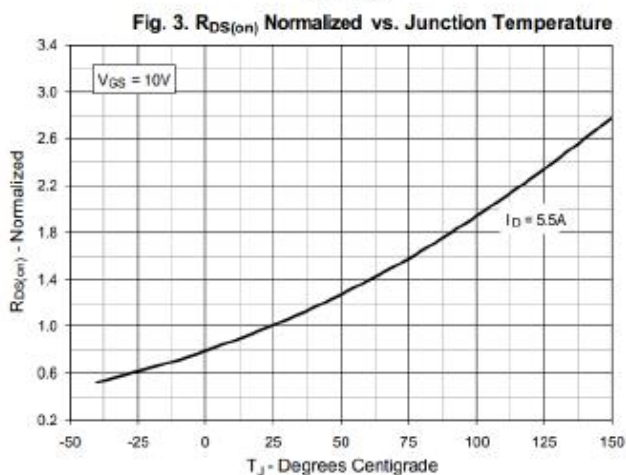
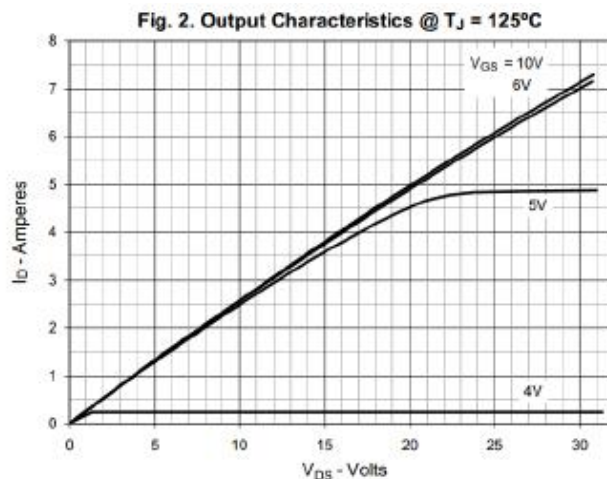
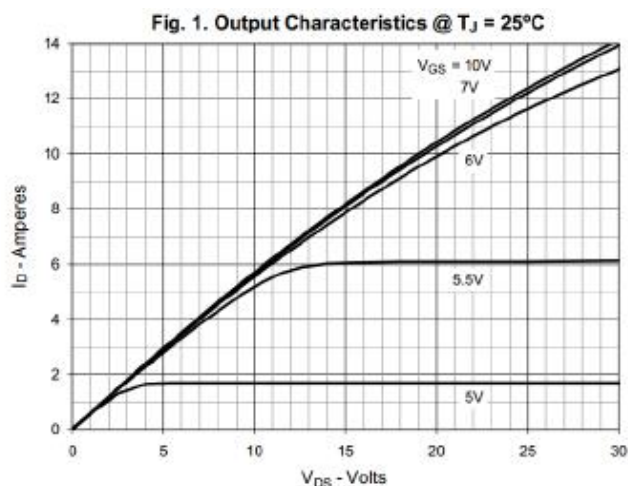


Fig. 7. Capacitance

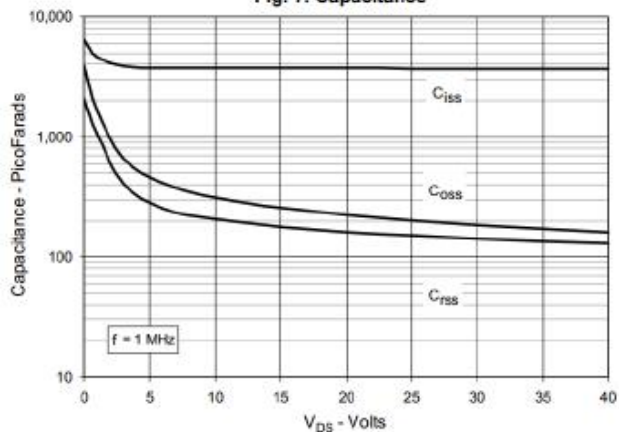


Fig. 8. Forward Voltage Drop of Intrinsic Diode

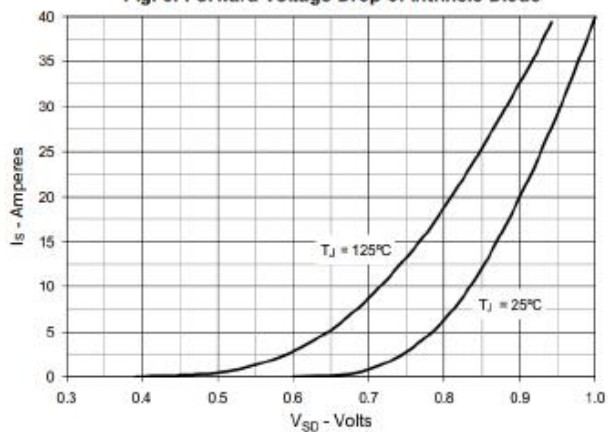


Fig. 9. Gate Charge

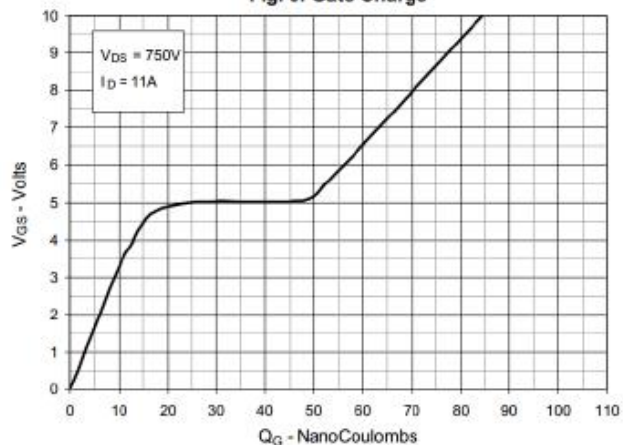
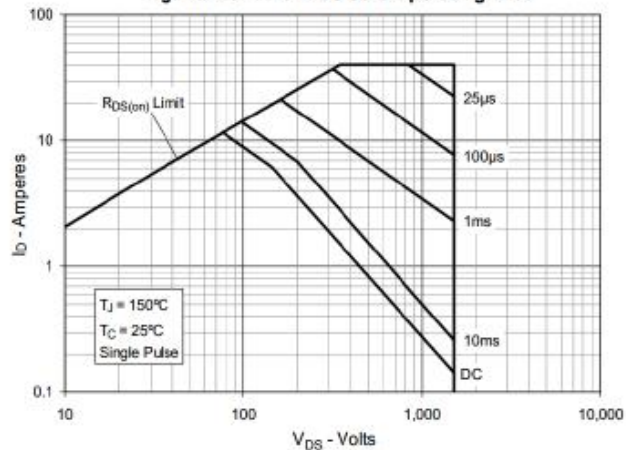


Fig. 10. Forward-Bias Safe Operating Area



9. Test Circuits and Waveform

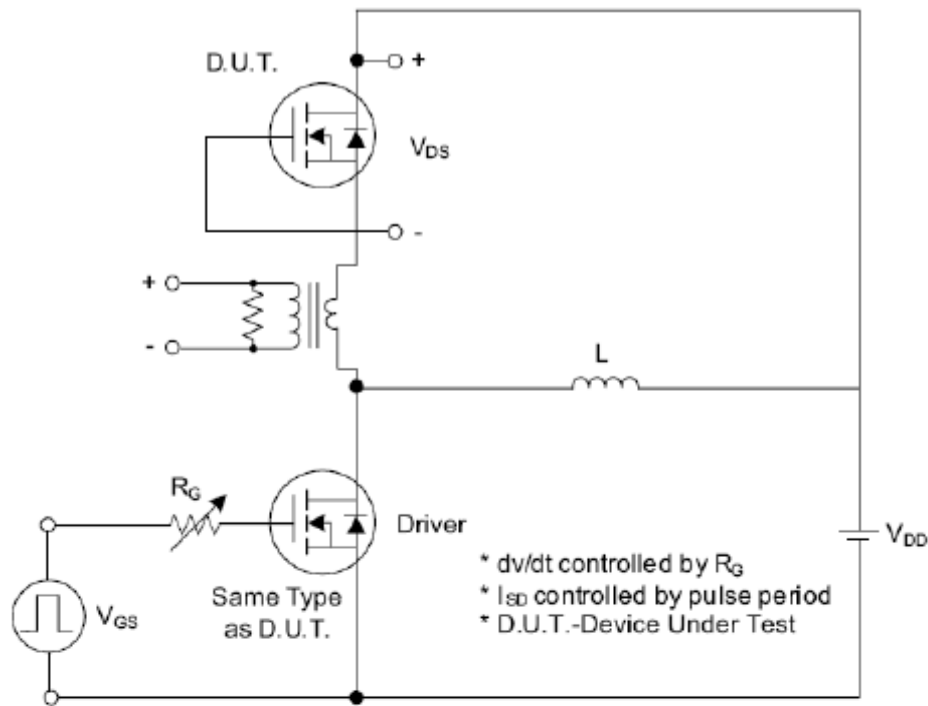


Fig. 1.1 Peak Diode Recovery dv/dt Test Circuit

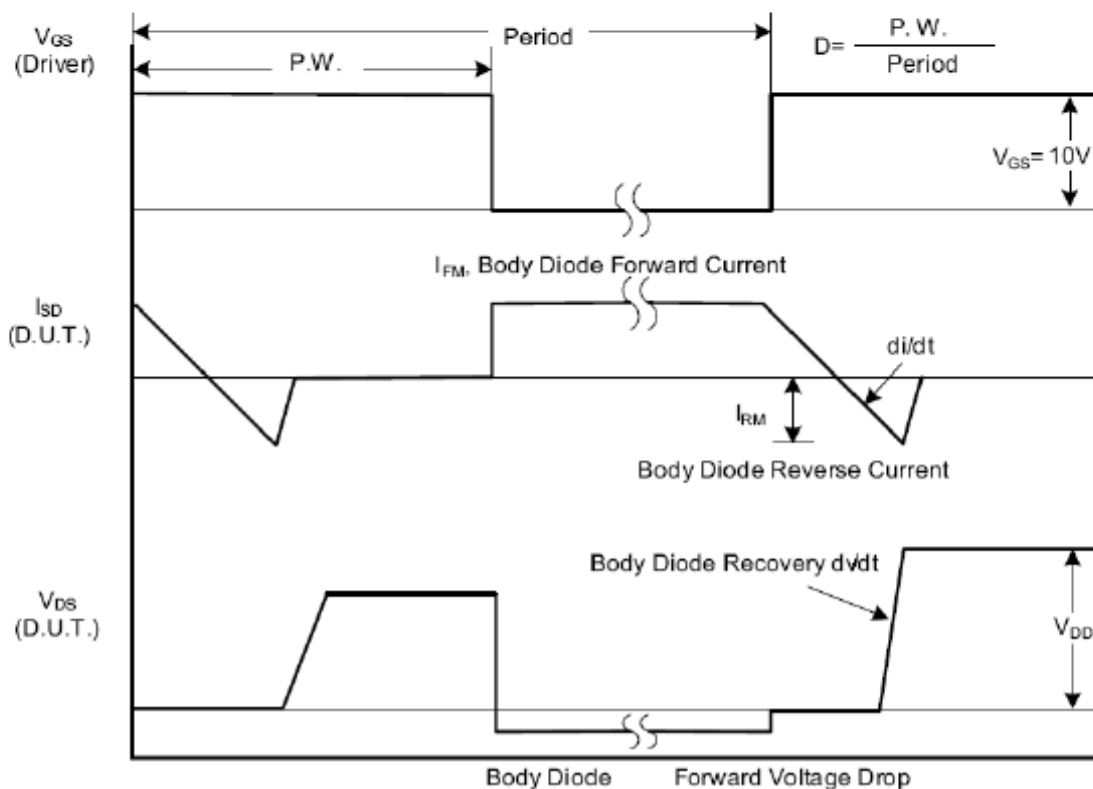


Fig. 1.2 Peak Diode Recovery dv/dt Waveforms

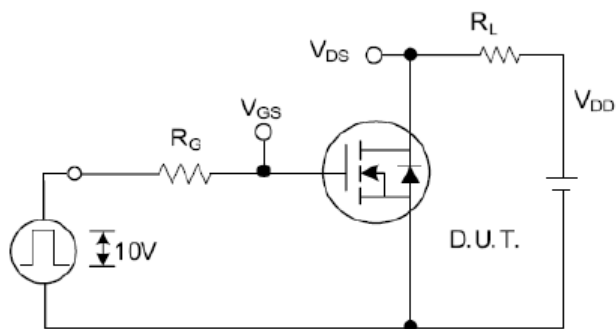


Fig. 2.1 Switching Test Circuit

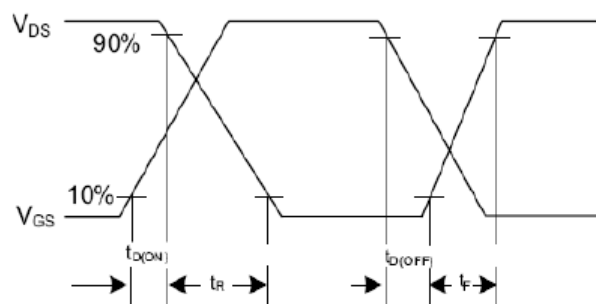


Fig. 2.2 Switching Waveforms

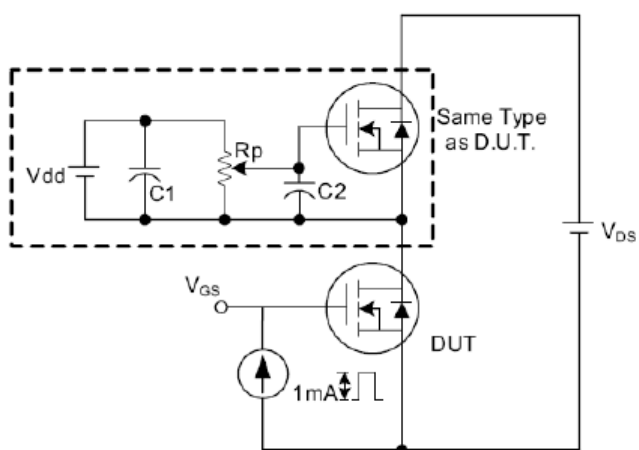


Fig. 3.1 Gate Charge Test Circuit

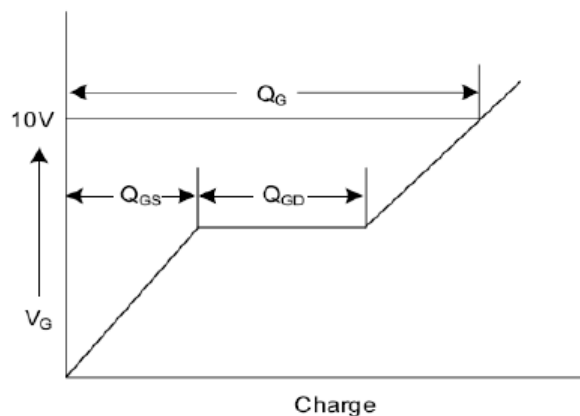


Fig. 3.2 Gate Charge Waveform

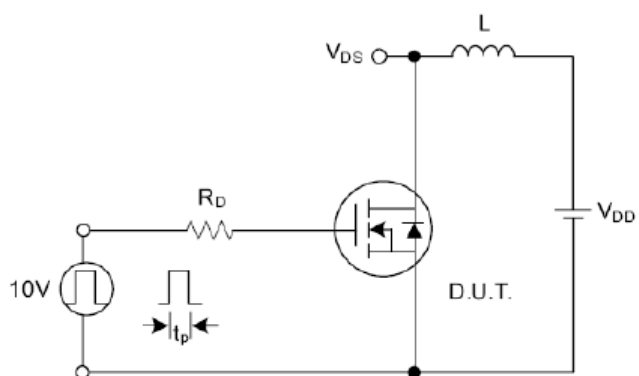


Fig. 4.1 Unclamped Inductive Switching Test Circuit

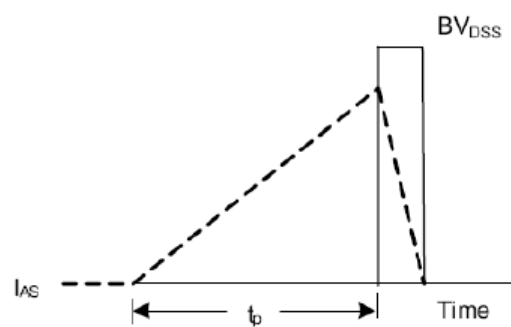


Fig. 4.2 Unclamped Inductive Switching Waveforms