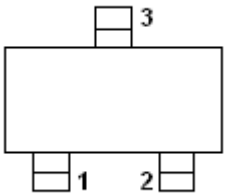
1. Description

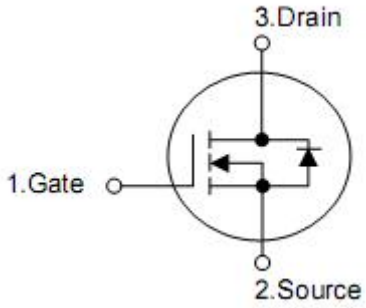
The KIA3402 uses advanced trench technology to provide excellent $R_{DS(on)}$,low gate charge and operation with gate voltages as low as 2.5V.This device is suitable for use as a load switch or in PWM applications. KIA3402(Green Product) is offered in a lead-free package.

2. Features

- V_{DS}(V)=30V
- I_D=4.0A
- $R_{DS(on)}$<70mΩ(V_{GS}=10V,I_D=4.0A)
- $R_{DS(on)}$<75mΩ(V_{GS}=4.5V,I_D=2.3A)
- $R_{DS(on)}$<105mΩ(V_{GS}=2.5V,I_D=1.5A)

3.Symbol





Pin	Function
1	Gate
2	Source
3	Drain

4. Absolute maximum ratings

(T_A=25°C,unless otherwise noted)

Parameter		Symbol	Rating	Units
Drain-source voltage		V_{DS}	30	V
Gate-source voltage		V_{GS}	±12	V
Continuous drain current [A]	T_A=25°C	I_D	4.0	A
	T_A=70°C		3.4	
Pulsed drain current [B]		I_{DM}	15	A
Total power dissipation [A]	T_A=25 °C	P_D	1.4	W
	T_A=70°C		1	W
Junction and storage temperature range		T_J,T_{STG}	-55 to150	°C

5. Thermal characteristics

Parameter	Symbol	Typ	Max	Unit
Maximum junction-ambient [A](t≤10s)	$R_{\theta JA}$	70	90	°C/W
Maximum junction-ambient [A]	$R_{\theta JA}$	100	125	°C/W
Maximum junction-Lead [C]	$R_{\theta JL}$	63	80	°C/W

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_D=250μA	30	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=24V, V_{GS}=0V	-	-	1	μA
Gate- body leakage current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.8	1	1.6	V
On state drain current	$I_{D(on)}$	V_{GS}=4.5V, V_{DS}=5V	10	-	-	A
Static drain-source on-resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=4.0A	-	-	70	mΩ
		V_{GS}=4.5V,I_D=2.3A	-	-	75	
		V_{GS}=2.5V,I_D=1.5A	-	-	105	
Forward transconductance	gfs	V_{DS}=5.0V, I_D=4.0A	-	8.0	-	S
Diode forward voltage	V_{SD}	V_{GS}=0V,I_S=1A	-	0.8	1.2	V
Maximum body-diode continuous current	I_S		-	-	2.5	A
Input capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V, f=1MHz	-	390	-	pF
Output capacitance	C_{oss}		-	54.5	-	
Reverse transfer capacitance	C_{rss}		-	41	-	
Gate resistance	R_g	V_{DS}=0V, V_{GS}=0V,f=1MHz	-	3	-	Ω
Total gate charge	Q_g	V_{DS}=15V, V_{GS}=4.5V I_D =4.0A	-	4.34	-	nC
Gate-source charge	Q_{gs}		-	0.6	-	
Gate-drain charge	Q_{gd}		-	1.38	-	
Turn-on delay time	$t_{d(on)}$	V_{DS}=15V, R_L=3.75Ω,, R_G=6Ω, V_{GS}=10V	-	3.3	-	ns
Rise time	t_r		-	1	-	
Turn-off delay time	$t_{d(off)}$		-	21.7	-	
Fall time	t_f		-	2.1	-	
Reverse recovery time	t_{rr}	IF=4.0A,dI/dt=100A/μs,	-	12	-	nS
Reverse recovery charge	Q_{rr}		-	6.3	-	nC

Note:A.The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz.Copper,in a still air environment with T_A=25℃.The value in any given application depends on the user's specific board design.The current rating is based on the t≤10s thermal resistance rating.

B.Repetitive rating,pulse width limited by junction temperature.

C.The $R_{\theta JA}$ the sum of the thermal inpedence from junction to lead $R_{\Theta jl}$ and lead to ambient.

D.The static characteristics in Figures 1 to 6,12,14 are obtained using 80μs pulses,duty cycle 0.5% max.

E.These tests are performed with the device mounted on 1 in^2 FR-4 board with 2oz. Copper,in a still air environment with T_A=25℃.The SOA curve provides a single pulse rating.

7. Test circuits and waveforms

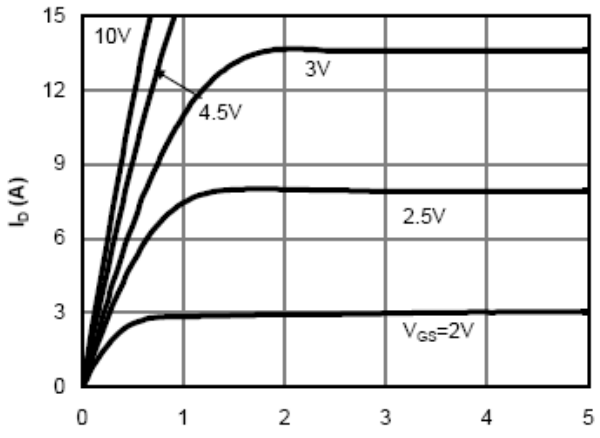


Fig 1: On-Region Characteristics

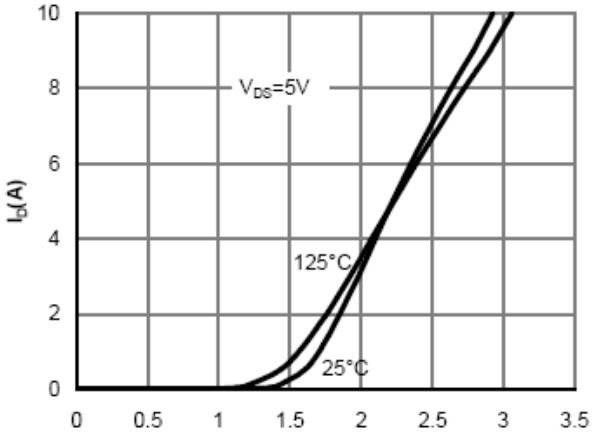


Figure 2: Transfer Characteristics

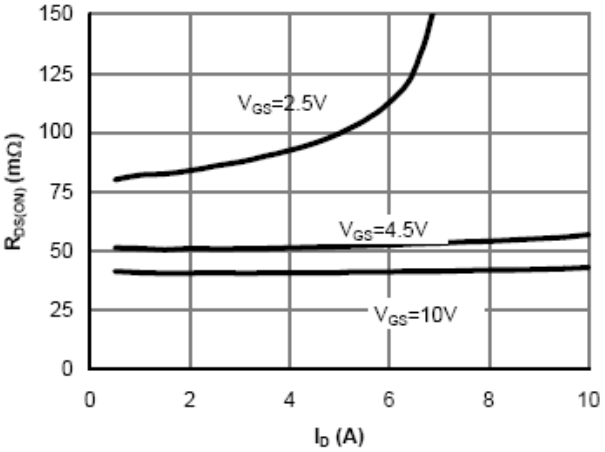


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

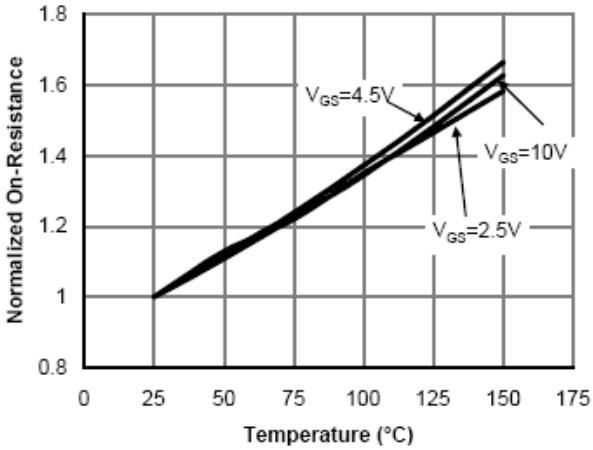


Figure 4: On-Resistance vs. Junction Temperature

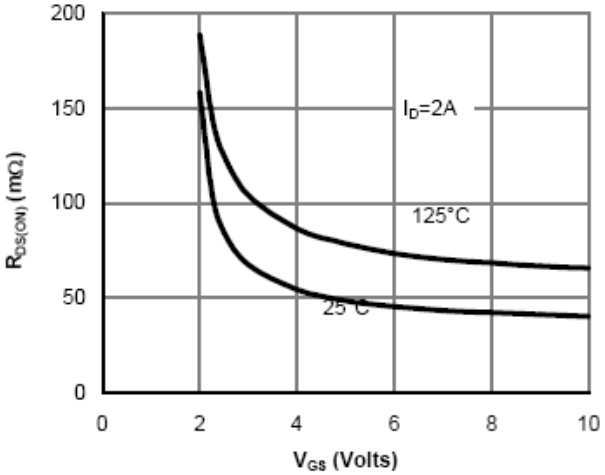


Figure 5: On-Resistance vs. Gate-Source Voltage

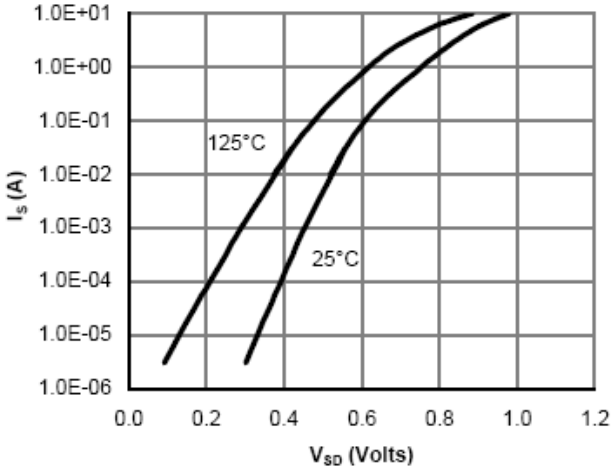


Figure 6: Body-Diode Characteristics

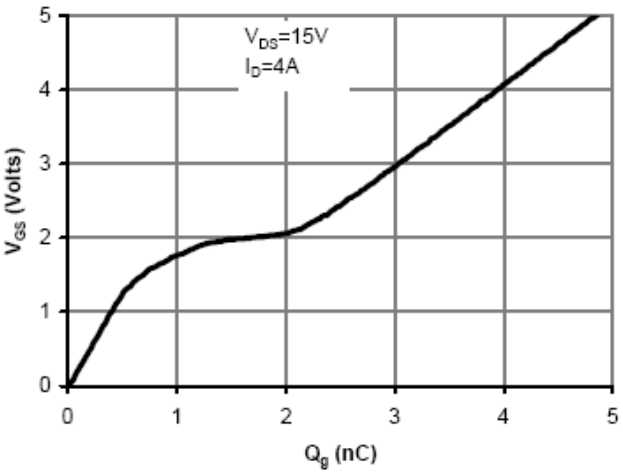


Figure 7: Gate-Charge Characteristics

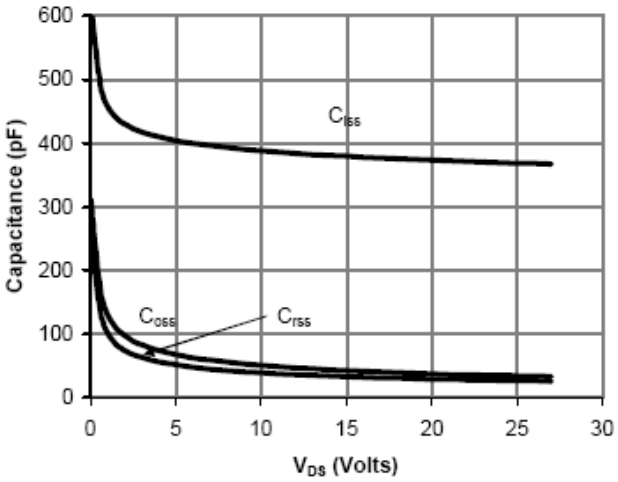


Figure 8: Capacitance Characteristics

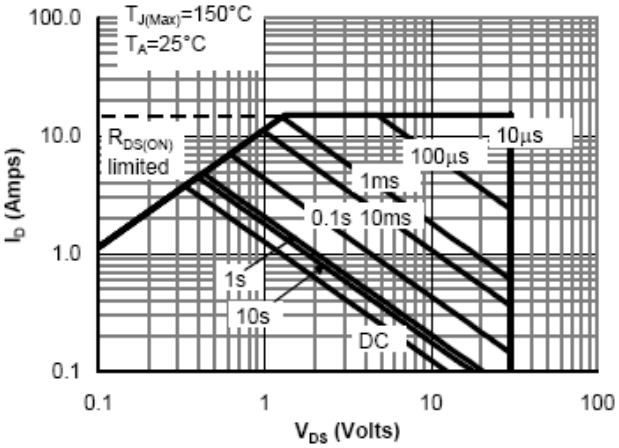


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

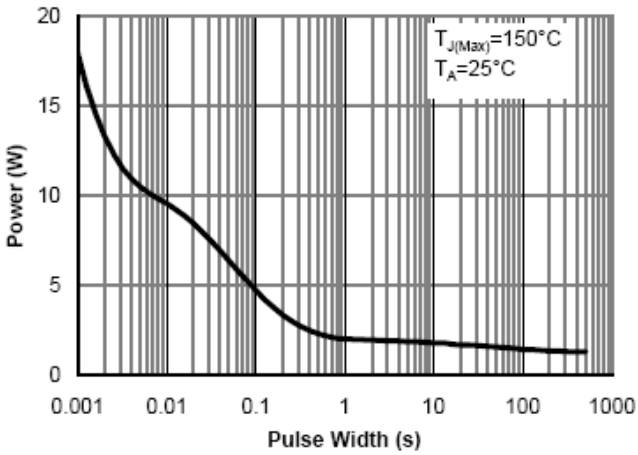


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

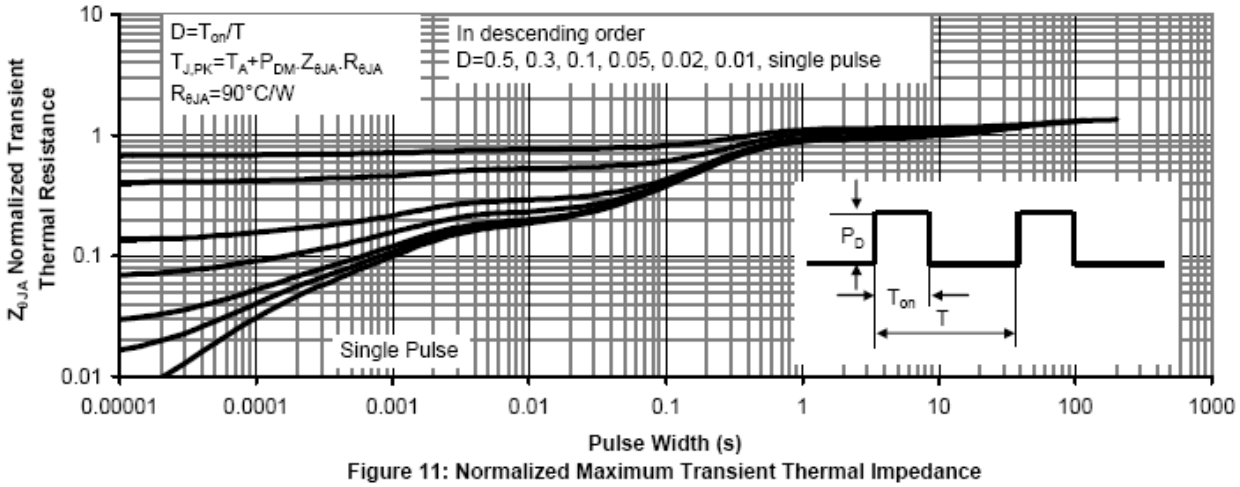


Figure 11: Normalized Maximum Transient Thermal Impedance

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET ***category:***

Click to view products by KIA ***manufacturer:***

Other Similar products are found below :

614233C 648584F FDPF9N50NZ IRFD120 IRFF430 JANTX2N5237 2N7000 FCA20N60_F109 FDZ595PZ 2SK2267(Q) 2SK2545(Q,T) 405094E 423220D MIC4420CM-TR VN1206L 614234A 715780A SSM6J414TU,LF(T 751625C PSMN4R2-30MLD TK31J60W5,S1VQ(O 2SK2614(TE16L1,Q) DMN1017UCP3-7 EFC2J004NUZTDG FCAB21350L1 P85W28HP2F-7071 DMN1053UCP4-7 NTE2384 NTE2969 NTE6400A DMN61D9UWQ-13 US6M2GTR DMN31D5UDJ-7 SSM6P54TU,LF DMP22D4UFO-7B IPS60R3K4CEAKMA1 DMN1006UCA6-7 DMN16M9UCA6-7 STF5N65M6 STU5N65M6 C3M0021120D DMN13M9UCA6-7 BSS340NWH6327XTSA1 MCM3400A-TP DMTH10H4M6SPS-13 IPS60R1K0PFD7SAKMA1 IPS60R360PFD7SAKMA1 IPS60R600PFD7SAKMA1 IPS60R210PFD7SAKMA1 DMN2990UFB-7B