

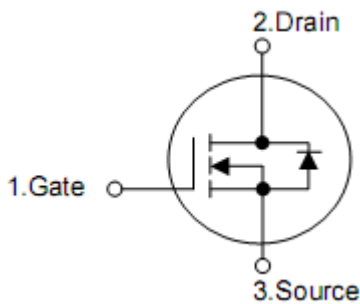
1. Features

- Advanced SGT technology
- $R_{DS(on)}=4.2m\Omega(typ.) @ V_{GS}=10V$
- Super Low Gate Charge
- Green Device Available
- Excellent CdV/dt effect decline
- 100% ΔV_{ds} TESTED
- 100% UIS TESTED

2. Pin configuration



DFN5*6



Pin	Function
1,2,3	Gate
4	Drain
5,6,7,8	Source

3. Ordering Information

Part Number	Package	Brand
KCY3008C	DFN5*6	KIA

4. Absolute maximum ratings

(T_A=25°C unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-to-Source Voltage (V _{GS} =0V)		V _{DSS}	85	V
Gate-Source voltage (V _{DS} =0V)		V _{GS}	±20	V
Continuous Drain Current ¹⁾	T _C =25°C	I _D	120	A
	T _C =100°C	I _D	77	A
Drain Current-Continuous @ Current-Pulsed ²⁾		I _{DM(pulse)}	480	A
Maximum Power Dissipation (T _C =25°C) ⁴⁾		P _D	150	W
Avalanche energy, single pulse ³⁾		E _{AS}	625	mJ
Junction & Storage Temperature Range		T _J & T _{STG}	-55 to 150	°C

5. Thermal characteristics

Parameter	Symbol	Ratings	Units
Thermal resistance, Junction-case ¹⁾	R _{θJC}	1.0	°C/W

6. Electrical characteristics

(T_A=25°C, unless otherwise notes)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
On/Off States						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V,I _D =250μA	85	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =85V,V _{GS} =0V, T _C =25°C	-	-	1	μA
Gate leakage current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V	-	-	±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250μA ,	2	3	4	V
Drain-source on-resistance ²⁾	R _{DS(on)}	V _{GS} =10V,I _D =30A	-	4.2	5.0	mΩ
Dynamic characteristics						
Gate Resistance	R _G	V _{GS} =0V,V _{DS} =0V F=1MHz	-	2.0	-	Ω
Input capacitance	C _{iss}	V _{DS} =50V,V _{GS} =0V, F=0.3MHz	-	3800	-	pF
Output capacitance	C _{OSS}		-	590	-	pF
Reverse transfer capacitance	C _{rSS}		-	20	-	pF
Switching Times						
Turn-on delay time	t _{d(on)}	V _{DS} =50V,V _{GS} =10V, I _D =30A,R _G =2Ω	-	20	-	ns
Rise time	t _r		-	40	-	ns
Turn-off delay time	t _{d(off)}		-	42	-	ns
Fall time	t _f		-	21	-	ns
Total gate charge	Q _g	V _{DS} =50V,V _{GS} =10V, I _D =30A	-	58	-	nC
Gate-source charge	Q _{gs}		-	15.6	-	nC
Gate-drain charge	Q _{gd}		-	14.5	-	nC
Source-Drain Diode Characteristics						
Source-Drain Current(Body Diode) ^{1),5)}	I _{SD}		-	-	120	V
Diode forward voltage ²⁾	V _{SD}	V _{GS} =0V,I _{SD} =30A T _J =25°C	-	-	1.2	V
Reverse recovery time	t _{rr}	T _J =25°C I _F =30A, di/dt=100A/μs	-	65	-	ns
Reverse recovery charge	Q _{rr}		-	155	-	nC
Forward Turn-on Time	t _{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS +LD)				

Notes:

1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.

2) The data tested by pulsed , pulse width≤300us , duty cycle≤2%.

3) The test condition is V_{DD}=50V, V_{GS}=10V, L=0.5mH, I_{AS}=50A.

4) The power dissipation is limited by 175°C junction temperature.

5) The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

7. Typical Characteristics

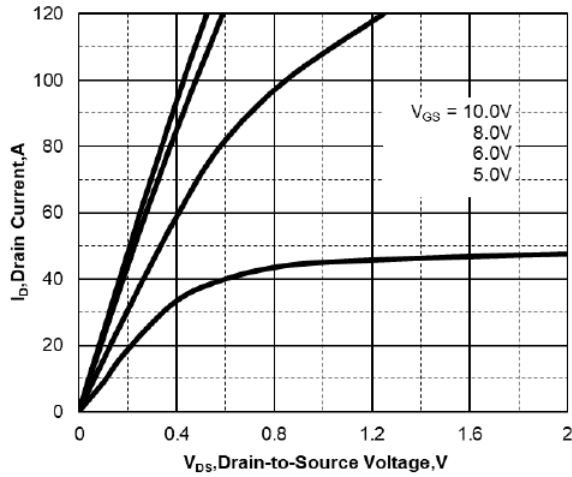


Fig1: Typical Output Characteristics

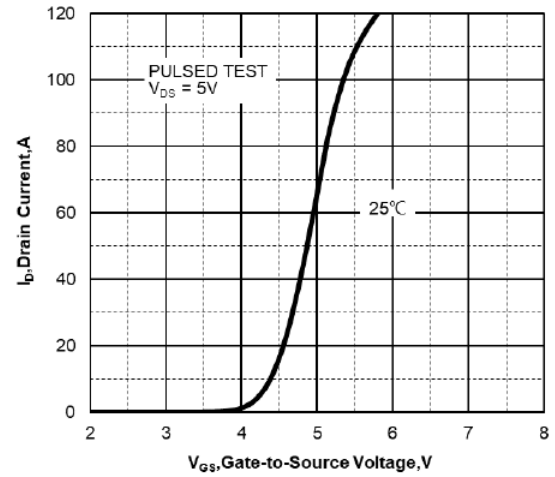


Fig 2: Typical Transfer Characteristics

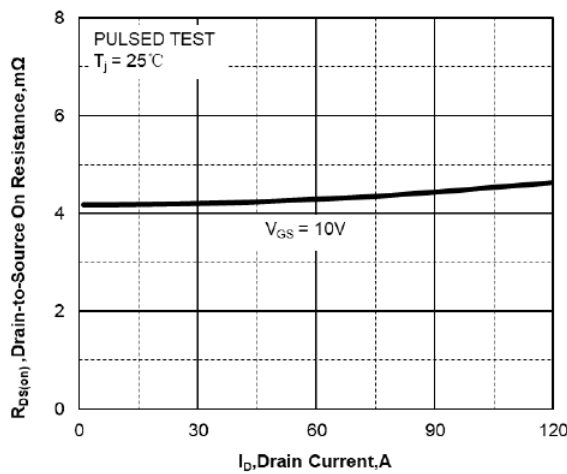


Fig 3: On-Resistance VS. Drain Current

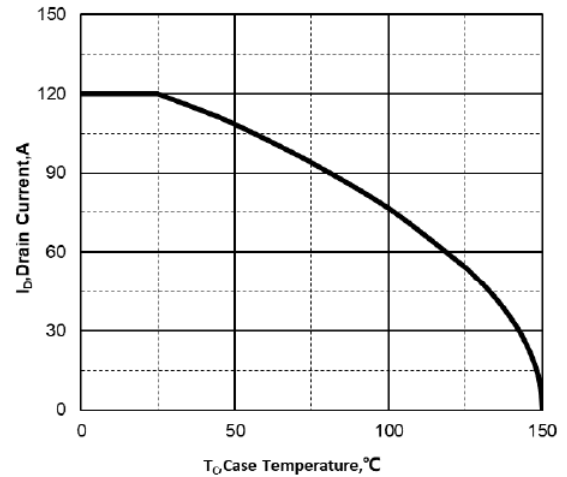


Fig 4: Maximum Continuous Drain Current VS. Case Temperature

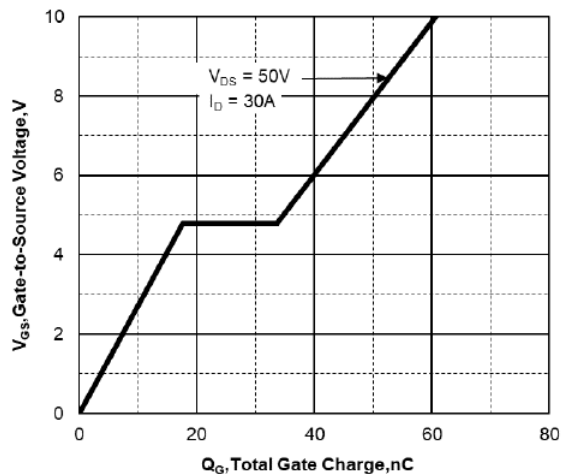


Fig 5: Gate Charge Characteristics

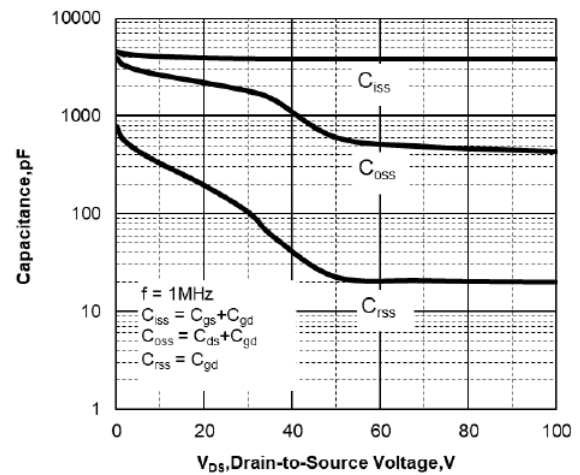


Fig 6: Capacitance Characteristics

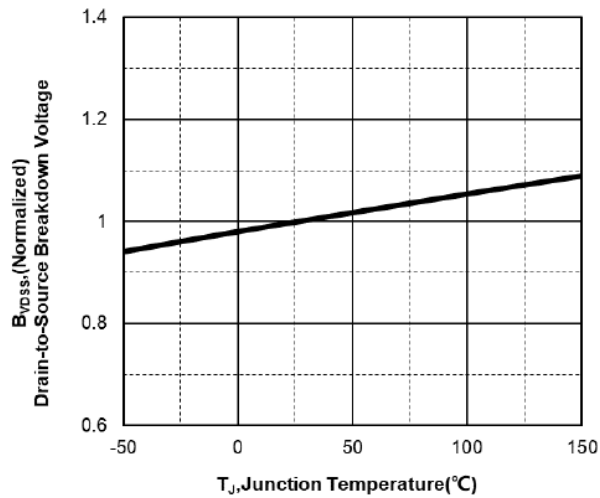


Fig 7: Normalized Breakdown Voltage VS. Junction Temperature

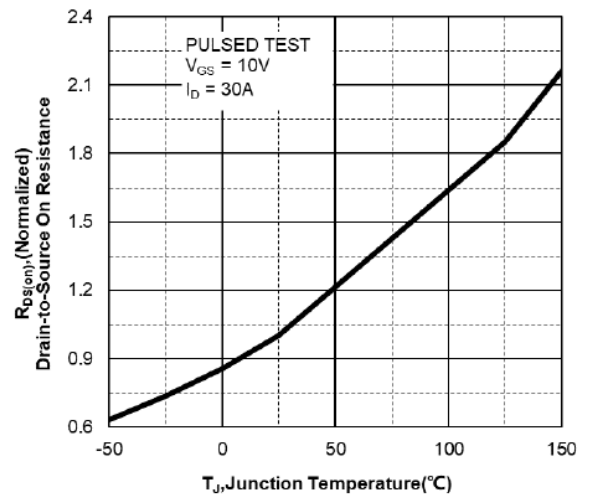


Fig 8: Normalized on Resistance VS. Junction Temperature

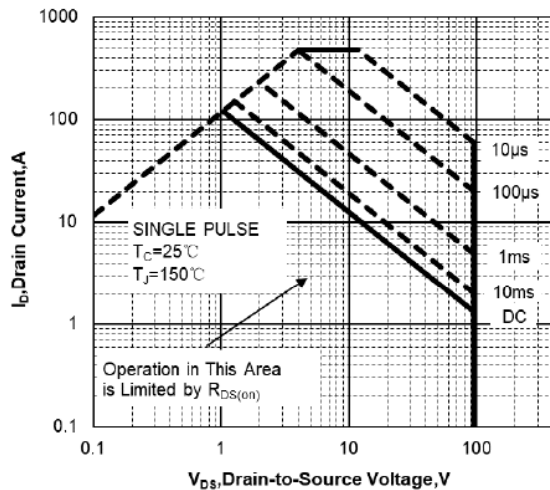


Fig 9: Maximum Safe Operating Area

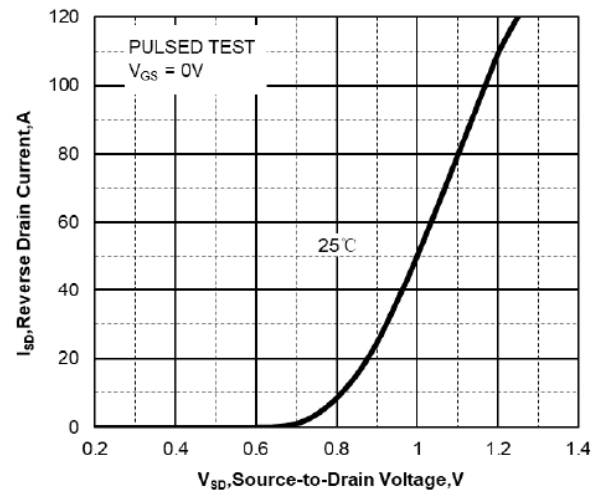


Fig 10: Body Diode Forward Characteristics

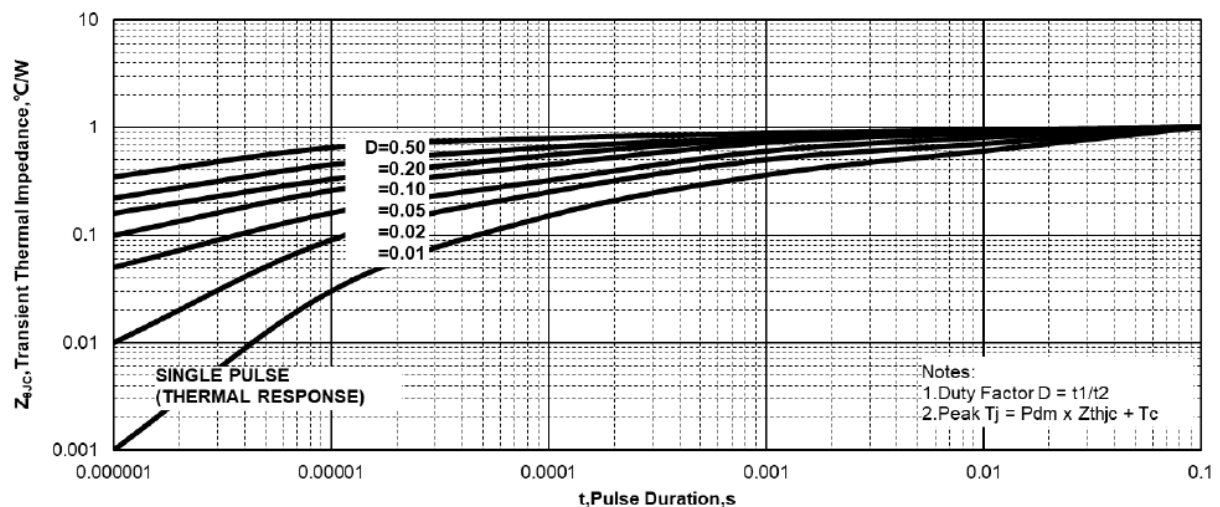


Fig.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

8. Test Circuit & Waveform

