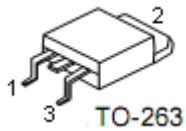
1. Features

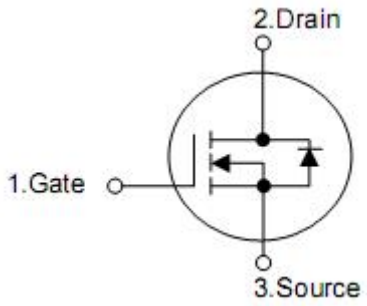
- Uses advanced SGT technology
- Extremely low R_{DS}(on).typ=4.5 mΩ@Vgs=10V
- Excellent gate charge x RDS(on) product(FOM)

2. Features

- Motor Drives
- SR(Synchronous Rectification)
- DC/DC convertion
- General purpose applications

3. Pin configuration





Pin	Function
1	Gate
2	Drain
3	Source

4. Ordering Information

Part Number	Package	Brand
KCB3008A	TO-263	KIA

5. Absolute maximum ratings

TC=25 ºC unless otherwise specified

Parameter		Symbol	Ratings	Unit
Drain-to-Source Voltage		V_{DSS}	85	V
Continuous Drain Current	T_C=25 ºC(Silicon limited)	I_D	160	A
	T_C=25 ºC(Package limited)		120	
	T_C=100 ºC(Silicon limited)		100	
Pulsed drain current (T_C = 25°C, t_p limited by T_{jmax})		I_{DP}	480	
Avalanche energy, single pulse (L=0.5mH, Rg=25Ω)		E_{AS}	60	mJ
Gate-Source voltage		V_{GS}	±20	V
Power dissipation (TC = 25 ºC)		P_{tot}	220	W
Junction & Storage Temperature Range		T_J& T_{STG}	-55 to 175	ºC

6. Thermal characteristics

Parameter	Symbol	Ratings	Units
Thermal resistance, junction-ambient	$R_{\theta JA}$	0.7	ºC/W
Thermal resistance, Junction-case	$R_{\theta JC}$	60	

7. Electrical characteristics

(T_J=25°C,unless otherwise notes)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	85	90	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=85V , V_{GS}=0V ,Tj=25 ºC	-	-	1	μA
		V_{DS}=85V , V_{GS}=0V, Tj=125 ºC	-	5	-	
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA ,Tj=25 ºC	2.0	3.0	4.0	V
Gate leakage current	I_{GSS}	V_{GS}=20V,V_{DS}=0V	-	-	100	nA
Drain-source on-resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=50A, Tj=25 ºC	-	4.5	5.5	mΩ
Transconductance	gfs	V_{DS}=5V,I_D=50A	-	80	-	S
Dynamic characteristics						
Gate Resistance	R_G	V_{GS}=0V,V_{DS}=0V F=1MHz	-	1.5	-	Ω
Input capacitance	C_{iss}	V_{DS}=40V,V_{GS}=0V, F=1MHz	-	4030	-	pF
Output capacitance	C_{oss}		-	545	-	pF
Reverse transfer capacitance	C_{rss}		-	35	-	pF
Turn-on delay time	$t_{d(on)}$	V_{DS}=40V,Tj=25 ºC, V_{GS}=10V,R_L=3Ω	-	20	-	ns
Rise time	t_r		-	38	-	ns
Turn-off delay time	$t_{d(off)}$		-	45	-	ns
Fall time	t_f		-	20	-	ns
Gate Charge Characteristics						
Total gate charge	Q_g	V_{DS}=40V,I_D=25A, V_{GS}=10V, F=1MHz	-	65	-	nC
Gate-source charge	Q_{gs}		-	25	-	nC
Gate-drain charge	Q_{gd}		-	14	-	nC
Diode characteristics						
Diode forward voltage	V_{SD}	V_{GS}=0V,I_{SD}=50A	-	0.95	1.4	V
Reverse recovery time	t_{rr}	I_F=20A DI$_F$/dt=500A/μs	-	60	-	ns
Reverse recovery charge	Q_{rr}		-	340	-	nC

8. Typical Characteristics

Figure 1. Typ. Output Characteristics (Tj=25℃)

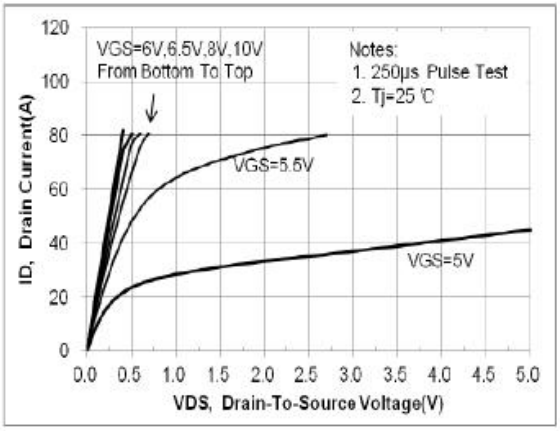


Figure 2. Transfer Characteristics (Junction Temperature)

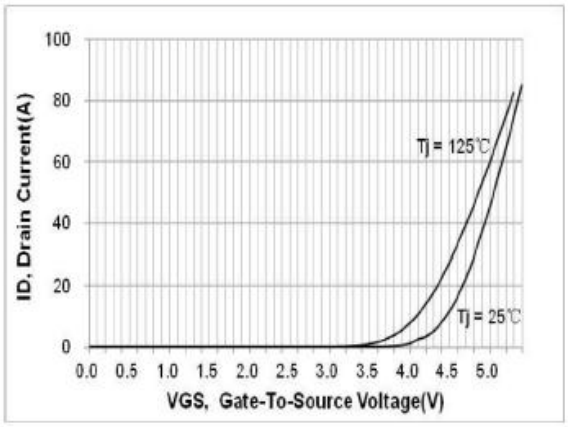


Figure 3. On-Resistance vs. Drain Current and Gate Voltage Figure

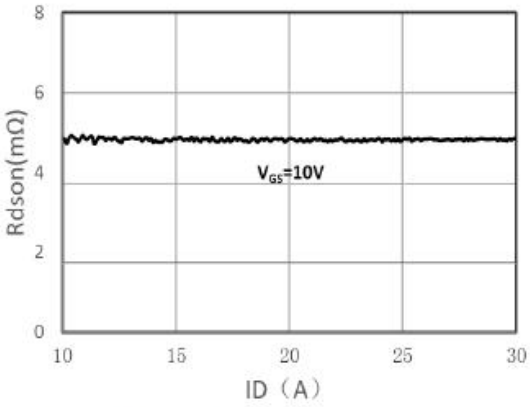


Figure 4. On-Resistance vs. Junction Temperature

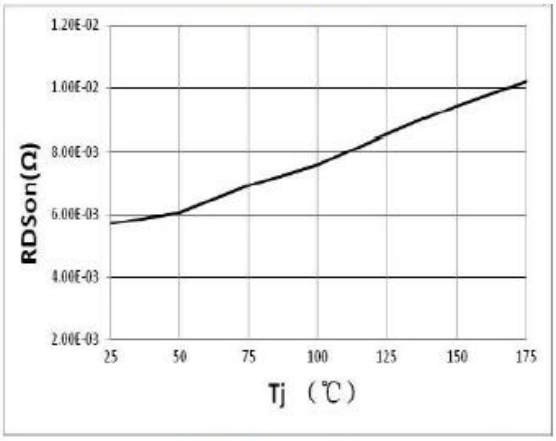


Figure 5. On-Resistance vs. Gate-Source Voltage (Junction Temperature)

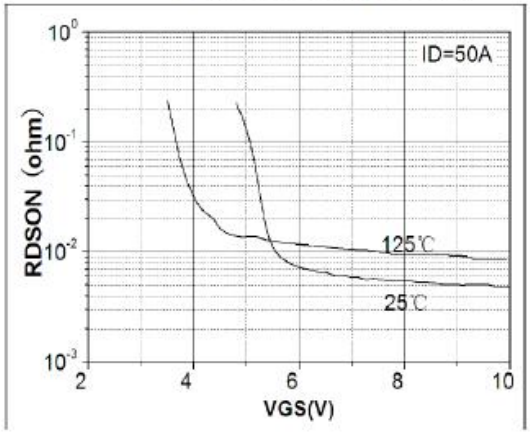


Figure 6. Body-Diode Characteristics (Junction Temperature)

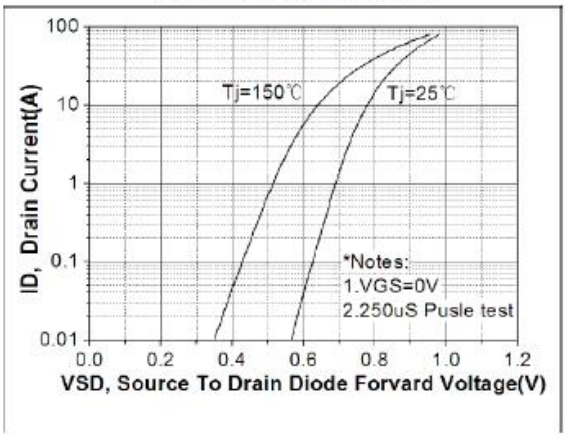


Figure 7. Gate-Charge Characteristics

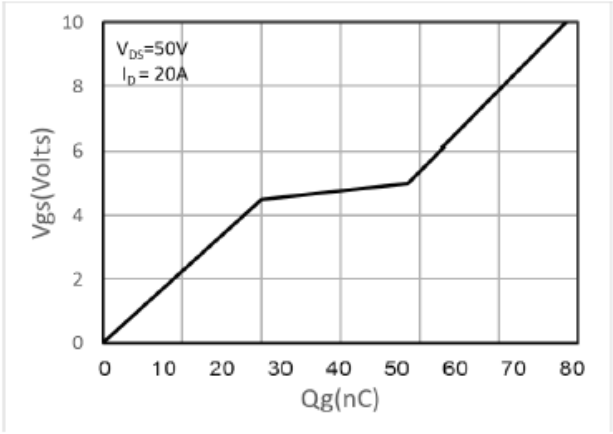


Figure 8. Capacitance Characteristics

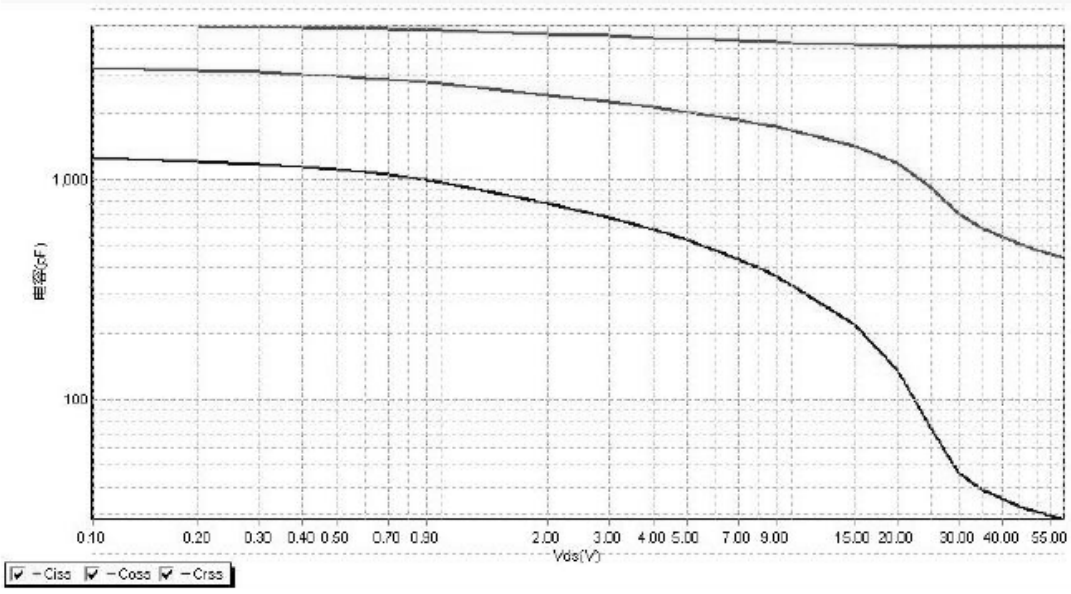


Figure 9: Normalized Maximum Transient Thermal Impedance (R_{thJC})

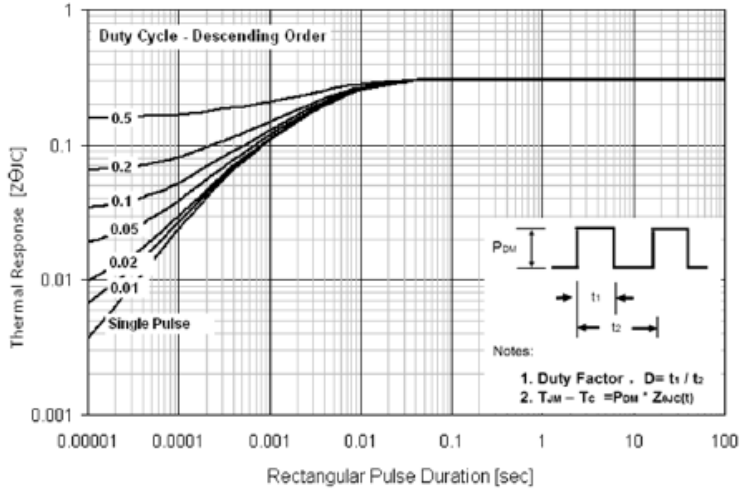


Figure 10: Normalized Maximum Transient Thermal Impedance (R_{thJA})