

1. Features

- Si N-Channel trench MOSFET
- $R_{DS(ON)}=4.1m\Omega$ (typ.) @ $V_{GS}=10V$
- Green Device Available
- Super Low Gate Charge
- Excellent Cdv/dt effect decline

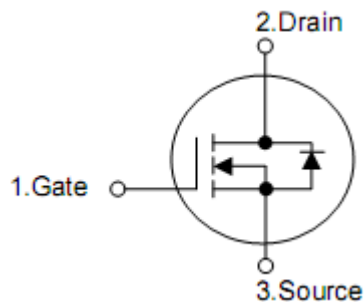
2. Application

- Synchronous Rectification for AC/DC Quick Charger
- Battery management
- UPS(Uninterruptible Power Supplies)

3. Pin configuration



DFN5*6



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

4. Ordering Information

Part Number	Package	Brand
KNY3080B	DFN5*6	KIA

5. Absolute maximum ratings

(T_C=25°C unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-to-Source Voltage		V _{DSS}	30	V
Gate-to-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _C =25°C	I _D	80	A
	T _C =100°C	I _D	30	A
Pulsed Drain Current		I _{DM}	160	A
Total Power Dissipation	T _C =25°C	P _D	25	W
Avalanche Energy		EAS	58	mJ
Operation Junction and Storage Temperature Range		T _J , T _{STG}	-55 to 150	°C

6. Thermal characteristics

Parameter	Symbol	Value	Unit
Thermal resistance , Junction to Ambient	R _{θJA}	60.5	°C/W

7. Electrical characteristics

(T_J=25°C, unless otherwise notes)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	30	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250uA	1.0	1.5	2.0	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A	-	4.1	6	mΩ
		V _{GS} =4.5V, I _D =20A	-	7.0	10	mΩ
Gate Resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	-	1.6	-	Ω
Forward transconductance	g _{fs}	V _{DS} =5V, I _D =30A	-	44	-	S
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHz	-	1550	-	pF
Output Capacitance	C _{oss}		-	230	-	pF
Reverse Transfer Capacitance	C _{rss}		-	200	-	pF
Turn-On Delay Time	t _{d(on)}	V _{DD} =15V, V _{GS} =10V, R _G =3.3Ω, I _D =15A	-	8	-	ns
Rise Time	t _r		-	100	-	ns
Turn-Off Delay Time	t _{d(off)}		-	34	-	ns
Fall Time	t _f		-	101	-	ns
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =4.5V, I _D =15A	-	32	-	nC
Gate-Source Charge	Q _{gs}		-	5	-	nC
Gate-Drain Charge	Q _{gd}		-	8.5	-	nC
Continuous Diode Forward Current	I _S	—	-	-	80	A
Pulse diode forward current	I _{SM}	—	-	-	140	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A	-	-	1	V

8. Typical Characteristics

Fig 1: Output Characteristics $T_J=25^\circ\text{C}$

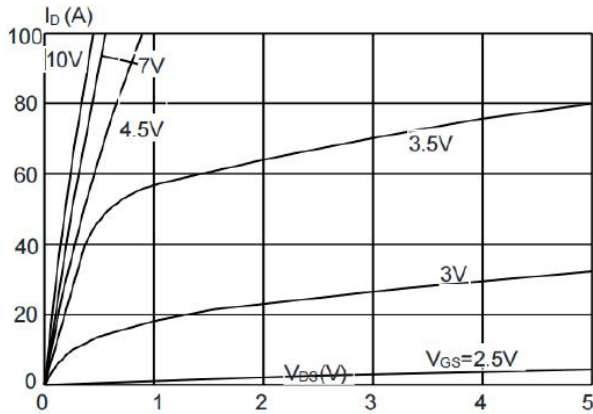


Fig 2: Typical Transfer Characteristics

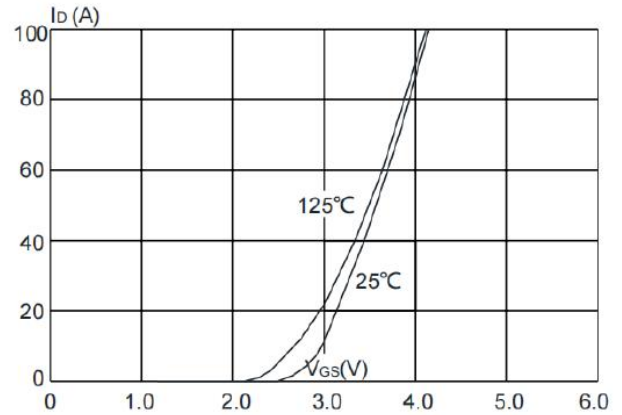


Fig 3: On-resistance vs. Drain Current

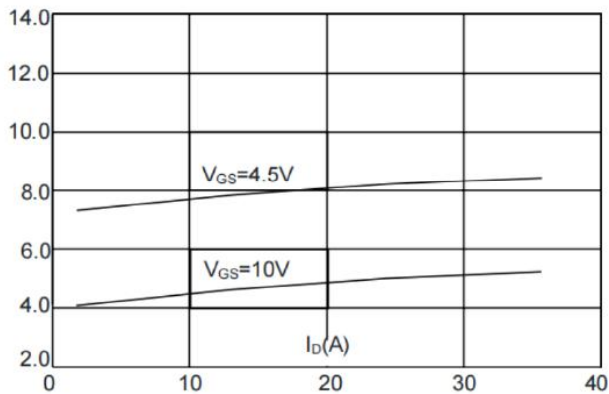


Fig 4: Body Diode Characteristics

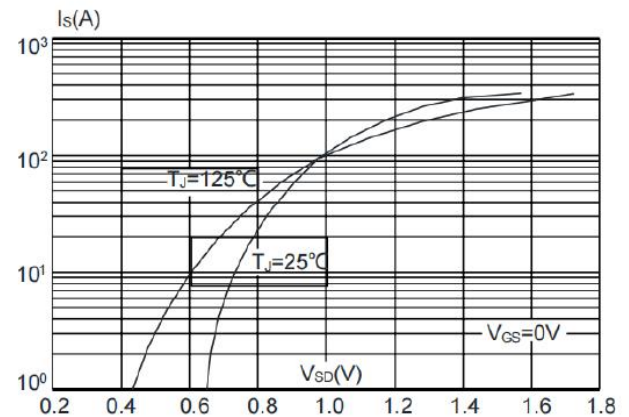


Fig 5: Gate Charge Characteristics

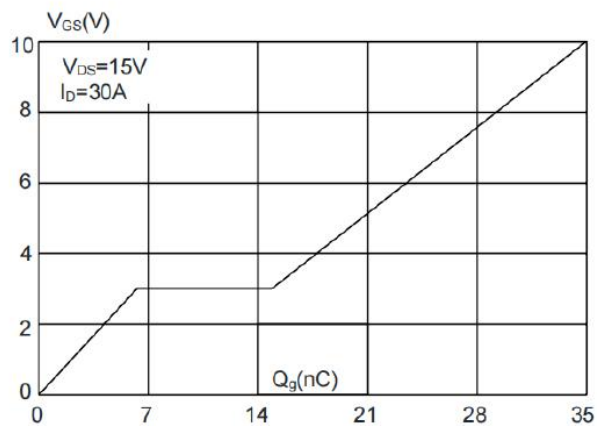


Fig 6: Capacitance Characteristics

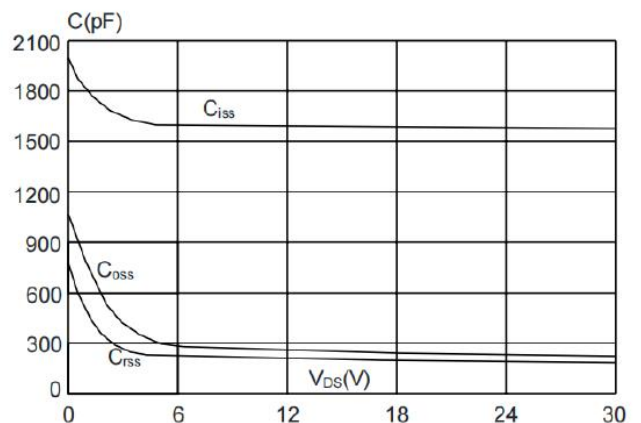


Fig 7: Normalized Breakdown Voltage vs. Junction Temperature

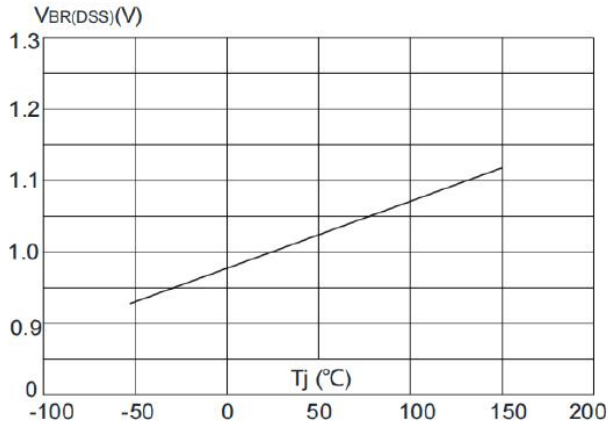


Fig 8: Normalized on Resistance vs. Junction Temperature

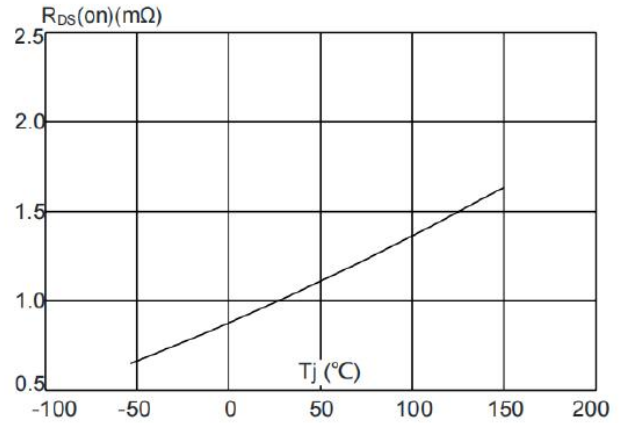


Fig 9: Maximum Safe Operating Area

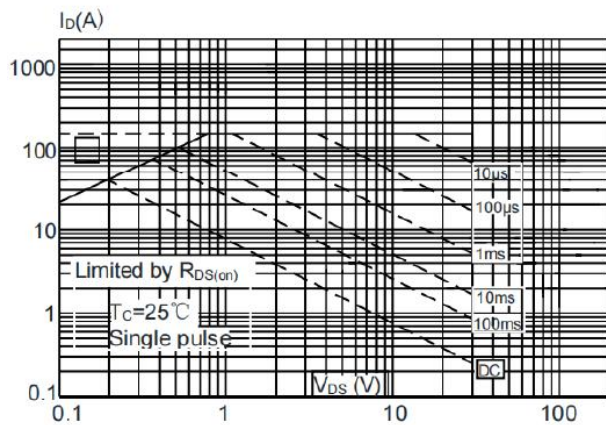


Fig 10: Maximum Continuous Drain Current vs. Case Temperature

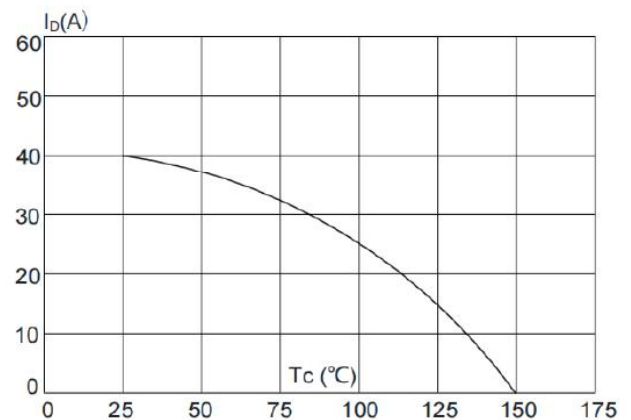
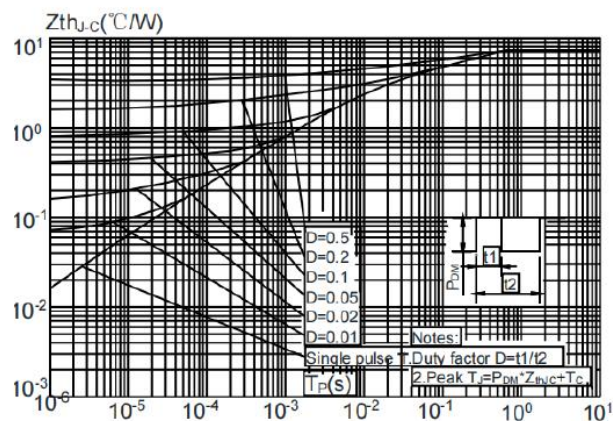


Fig 11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



9. Test Circuit & Waveform

Fig A: Gate Charge Test Circuit & Waveform

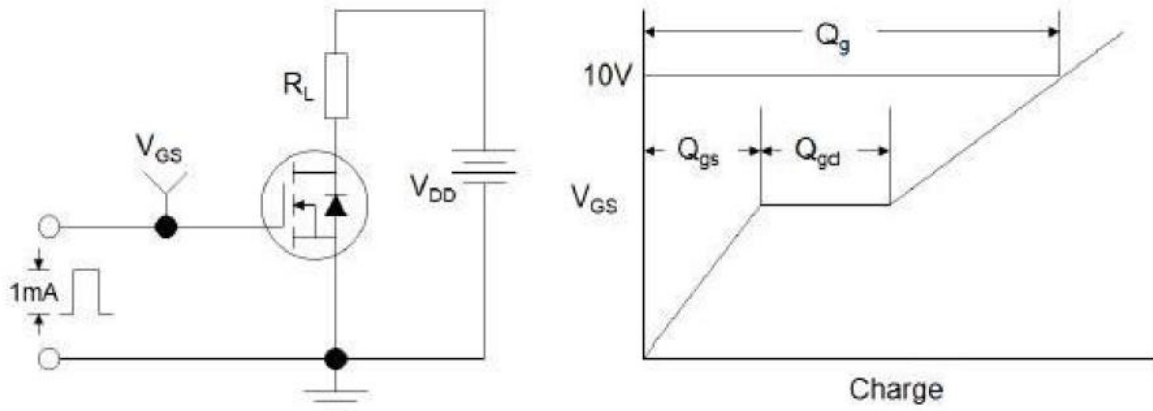


Fig B: Switching Test Circuit & Waveforms

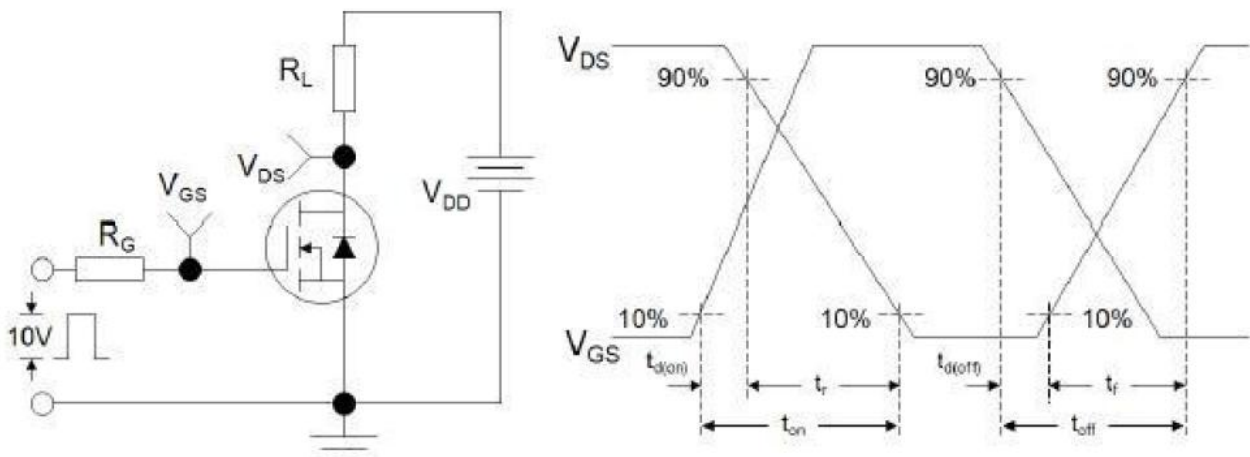


Fig C: Unclamped Inductive Switching Test Circuit & Waveforms

