

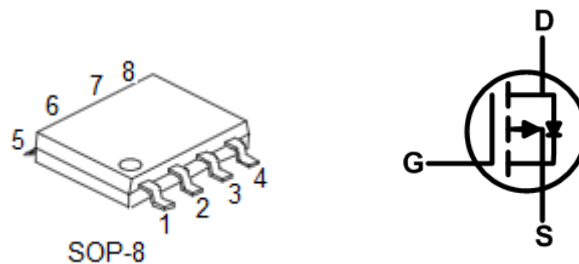
## 1. Features

- $R_{DS(ON)}=40m\Omega$  (typ.) @  $V_{GS}=-10V$
- -5V Logic Level Control
- P Channel SOP-8 Package
- Pb-Free, RoHS Compliant

## 2. Applications

- Load Switch
- Switching circuits
- High-speed line driver
- Power Management Functions

## 3. Pin configuration



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

#### 4. Ordering Information

Part Number	Package	Brand
KPE4403B	SOP-8	KIA

#### 5. Absolute maximum ratings

$T_A=25^{\circ}\text{C}$  unless otherwise specified

Parameter	Symbol	Rating	Unit
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-30	V
Maximum Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-50 to 150	$^{\circ}\text{C}$
Pulse Drain Current Tested <sup>1)</sup>	$I_{DM}$	-24	A
Continuous Drain Current	$T_A=25^{\circ}\text{C}$	-5	A
	$T_A=70^{\circ}\text{C}$	-4.8	A
Maximum Power Dissipation	$T_A=25^{\circ}\text{C}$	1.56	W
	$T_A=70^{\circ}\text{C}$	1.25	W
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	80	$^{\circ}\text{C/W}$

## 6. Electrical characteristics

(T<sub>J</sub>=25°C, unless otherwise notes)

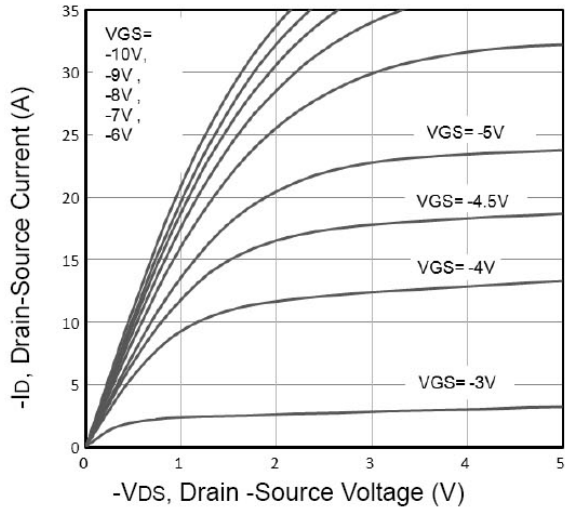
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V I <sub>D</sub> =-250μA	-30	--	--	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V, T <sub>A</sub> =25°C	--	--	-1	μA
		V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V, T <sub>A</sub> =125°C	--	--	-100	uA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	--	--	±100	nA
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1.2	-1.6	-2.5	V
Drain-Source On-State Resistance <sup>2)</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-4A	--	40	50	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3A	--	63	80	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V, f=1MHz	--	490	--	pF
Output Capacitance	C <sub>oss</sub>		--	68	--	pF
Reverse Transfer Capacitance	C <sub>rss</sub>		--	45	--	pF
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-15V I <sub>D</sub> =-4A, V <sub>GS</sub> =-10V	--	7.9	--	nC
Gate Source Charge	Q <sub>gs</sub>		--	0.6	--	nC
Gate Drain Charge	Q <sub>gd</sub>		--	2.5	--	nC
Turnon Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =-15V, I <sub>D</sub> =-1A, R <sub>G</sub> =3.3Ω, V <sub>GS</sub> =-10V	--	7	--	ns
Turnon Rise Time	t <sub>r</sub>		--	4.5	--	ns
TurnOff Delay Time	t <sub>d(off)</sub>		-	23	--	ns
TurnOff Fall Time	t <sub>f</sub>		--	8.4	--	ns
Source drain current(Body Diode)	I <sub>SD</sub>	T <sub>A</sub> =25°C	--	--	-2	A
Forward on voltage <sup>2)</sup>	V <sub>SD</sub>	T <sub>J</sub> =25°C, I <sub>SD</sub> =-4A, V <sub>GS</sub> =0V	--	-0.88	-1.2	V

Notes:

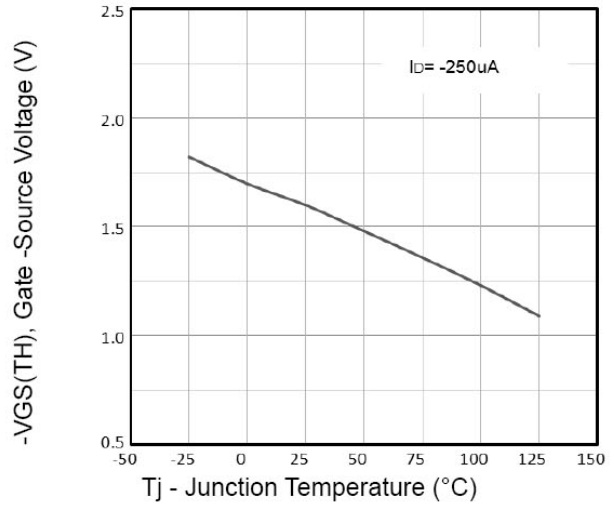
1.Pulse width limited by maximum allowable junction temperature

2.Pulse test ; Pulse width≤300 μs, duty cycle≤2%.

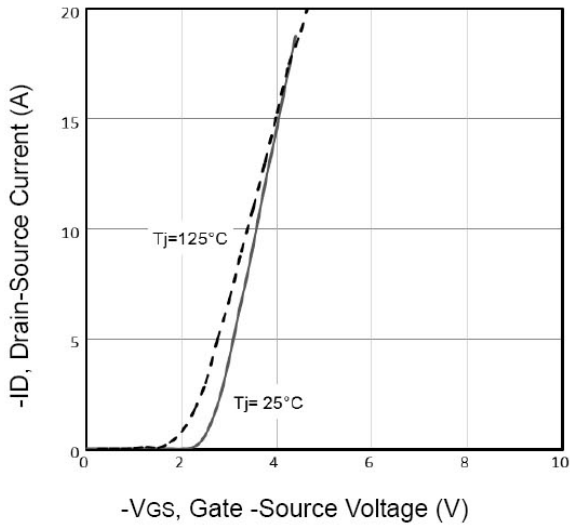
**7. Typical Characteristics**



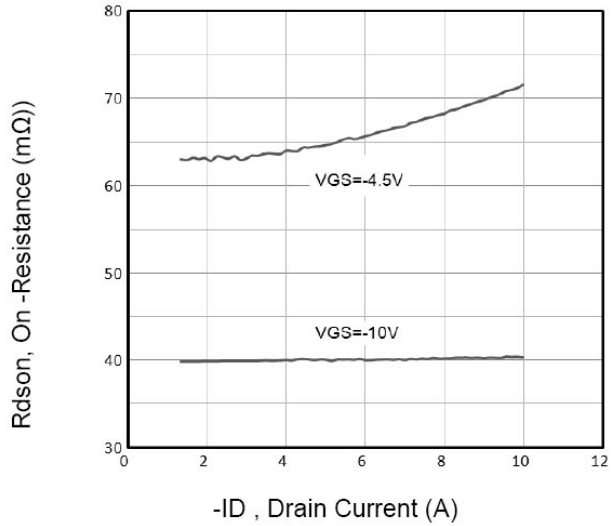
**Fig1.** Typical Output Characteristics



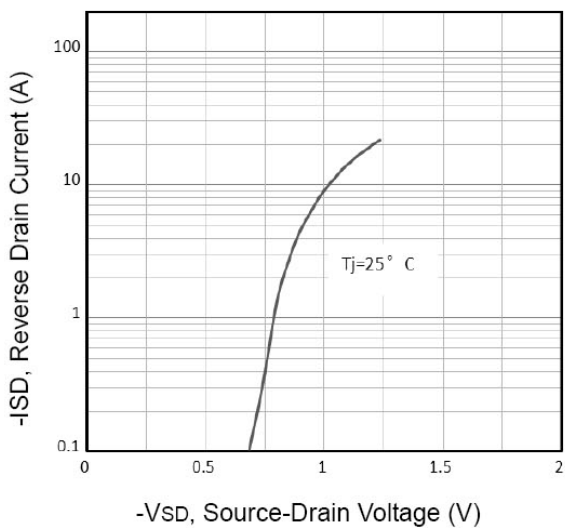
**Fig2.** Normalized Threshold Voltage Vs. Temperature



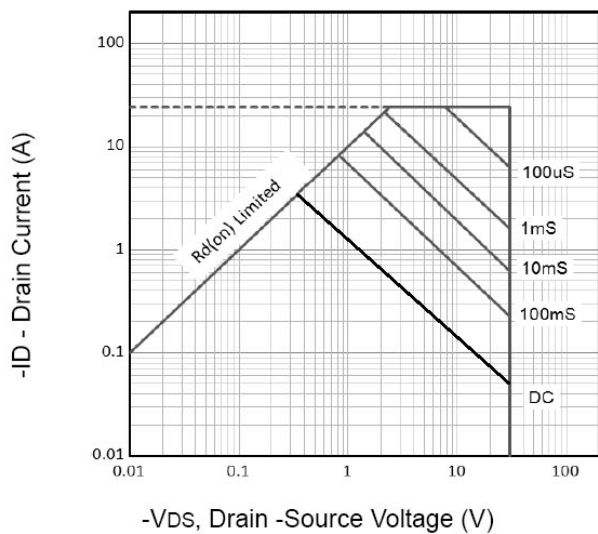
**Fig3.** Typical Transfer Characteristics



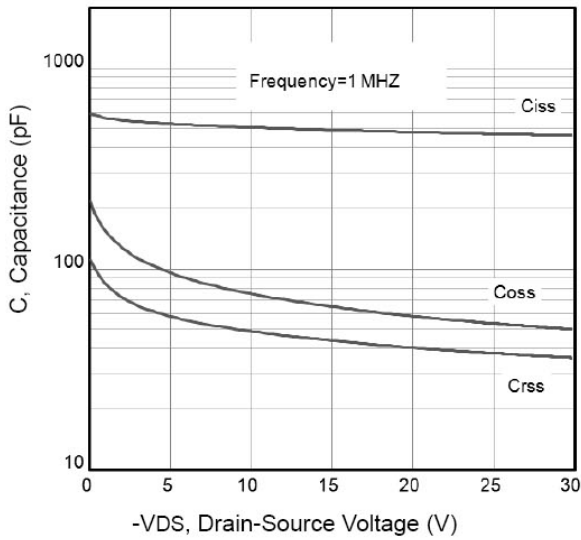
**Fig4.** On-Resistance vs. Drain Current and Gate



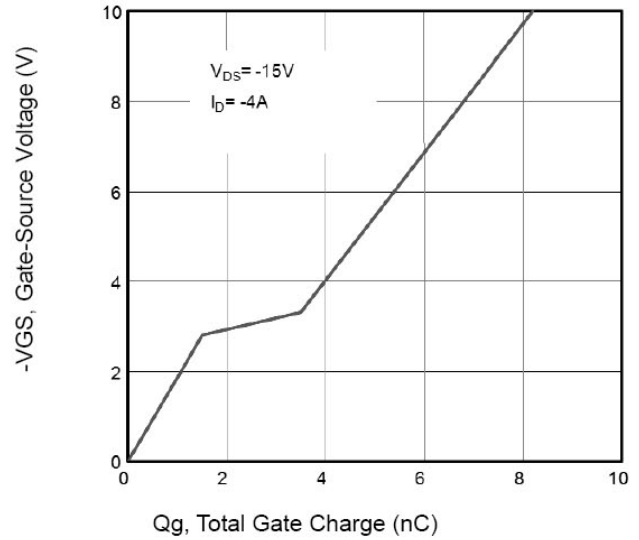
**Fig5.** Typical Source-Drain Diode Forward Voltage



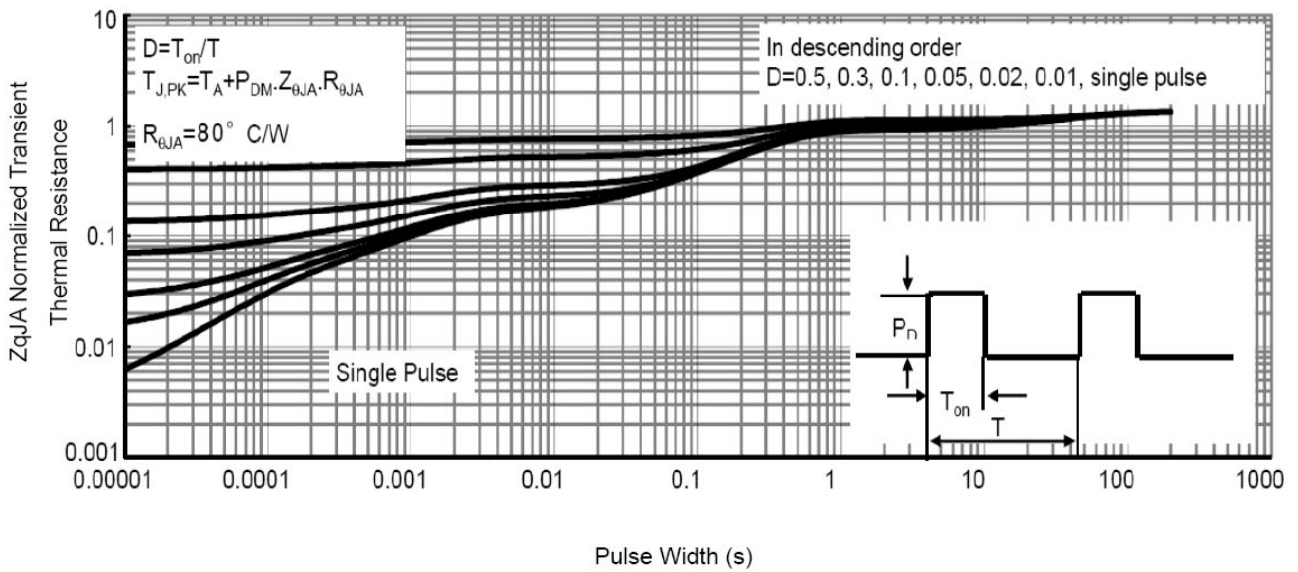
**Fig6.** Maximum Safe Operating Area



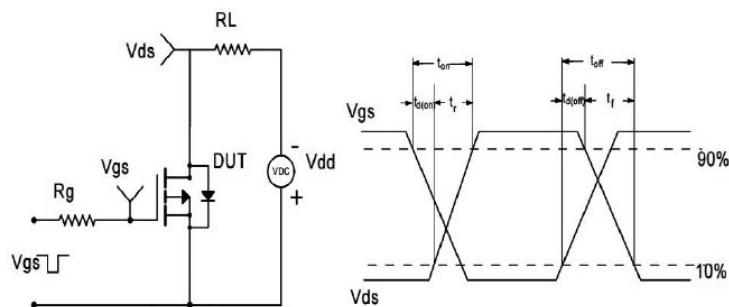
**Fig7.** Typical Capacitance Vs. Drain-Source Voltage



**Fig8.** Typical Gate Charge Vs. Gate-Source Voltage



**Fig9.** Normalized Maximum Transient Thermal Impedance



**Fig10.** Switching Time Test Circuit and waveforms

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