

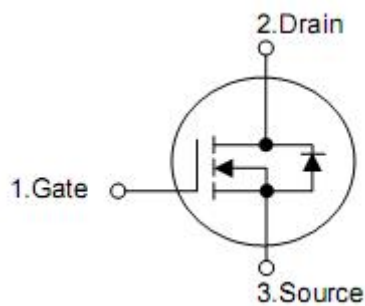
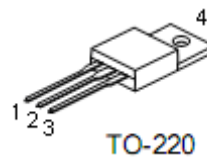
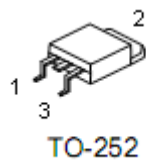
## 1. Applications

- n CRT, TV/Monitor
- n Other Applications

## 2. Features

- n  $R_{DS(on)} = 260m\Omega @ V_{GS} = 10V$
- n Proprietary new planar technology
- n Low gate charge minimize switching loss
- n Fast recovery body diode

## 3. Pin configuration



Pin	Function
1	Gate
2	Drain
3	Source
4	Drain

## 4. Absolute maximum ratings

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

Parameter	Symbol	Ratings	Units	
Drain-source voltage	V <sub>DSS</sub>	200	V	
Gate-source voltage	V <sub>GSS</sub>	±20	V	
Continuous drain current	I <sub>D</sub>	9.0	A	
Pulsed drain current at V <sub>GS</sub> =10V	I <sub>DM</sub>	36	A	
Single pulse Avalanche energy	E <sub>AS</sub>	300	mJ	
Power dissipation	Derating factor above 25°C	P <sub>D</sub>	83	W
			0.59	W/°C
Soldering temperature distance of 1.6mm from case for 10seconds	T <sub>L</sub>	300	°C	
Operating and storage temperature range	T <sub>J</sub> & T <sub>STG</sub>	-55~+150	°C	

Caution: Stresses greater than those listed in the “ Absolute maximum ratings” may cause permanent damage to the device.

## 5. Thermal characteristics

Parameter	Symbol	Rating		Unit
		TO-220	TO-252	
Thermal resistance,Junction-to-case	θ <sub>JC</sub>	1.5	1.5	°C/W
Thermal resistance,Junction-to-ambient	θ <sub>JA</sub>	62	75	°C/W

## 6. Electrical characteristics

( $T_J=25^{\circ}\text{C}$ , unless otherwise notes)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-source breakdown voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	200	-	-	V
Drain-to-source leakage current	$I_{DSS}$	$V_{DS}=200V, V_{GS}=0V$	-	-	1	$\mu A$
		$V_{DS}=160V, V_{GS}=0V, T_J=125^{\circ}\text{C}$	-	-	100	$\mu A$
Gate-to-source leakage current	$I_{GSS}$	$V_{GS}=20V, V_{DS}=0V$	-	-	100	nA
		$V_{GS}=-20V, V_{DS}=0V$	-	-	-100	nA
<b>On characteristics</b>						
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	-	4.0	V
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5.4A$	-	260	400	m $\Omega$
Forward transconductance	$g_{fs}$	$V_{DS}=25V, I_D=9A$	-	9.5	-	S
<b>Dynamic characteristics</b>						
Input capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1.0\text{MHz}$	-	670	-	pF
Output capacitance	$C_{oss}$		-	78	-	
Reverse transfer capacitance	$C_{rss}$		-	30	-	
Total gate charge	$Q_g$	$V_{DD}=150V, I_D=9A, V_{GS}=0V-10V,$	-	16	-	nC
Gate-source charge	$Q_{gs}$		-	3	-	
Gate-drain (Miller) charge	$Q_{gd}$		-	6	-	
<b>Resistive switching characteristics</b>						
Turn-on delay time	$T_{d(ON)}$	$V_{DD}=100V, I_D=9A, V_{GS}=10V,$ $R_G=12\Omega$	-	6.8	-	nS
Rise time	$t_{rise}$		-	5.8	-	
Turn-off delay time	$T_{d(OFF)}$		-	20	-	
Fall time	$t_{fall}$		-	5	-	
<b>Source-drain body diode characteristics</b> $T_J=25^{\circ}\text{C}$ , unless otherwise notes						
Diode forward voltage	$V_{SD}$	$V_{GS}=0V, I_S=9A$	-	-	1.5	V
Continuous source current <sup>2</sup>	$I_{SD}$	Integral PN-diode in MOSFET	-	-	9	A
Pulsed source current <sup>2</sup>	$I_{SM}$		-	-	36	A
Reverse recovery time	$t_{rr}$	$I_F=9A, di_F/dt=100A/\mu s$	-	155	-	ns
Reverse recovery charge	$Q_{rr}$		-	380	-	nC

Note: 1.  $T_J=25^{\circ}\text{C}$  to  $150^{\circ}\text{C}$

2. Pulse width  $\leq 380\mu s$ ; duty cycle  $\leq 2\%$ .

3. KIA finished product specifications please customer before placing order, should obtain the latest version of the finished product specifications.

7. Typical characteristics

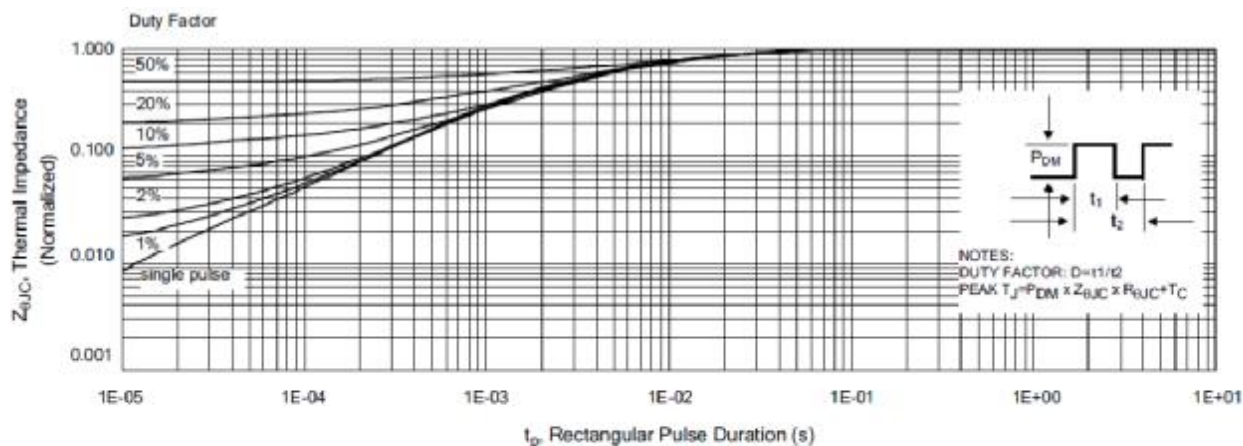


Figure 1. Maximum Effective Thermal Impedance, Junction-to-Case

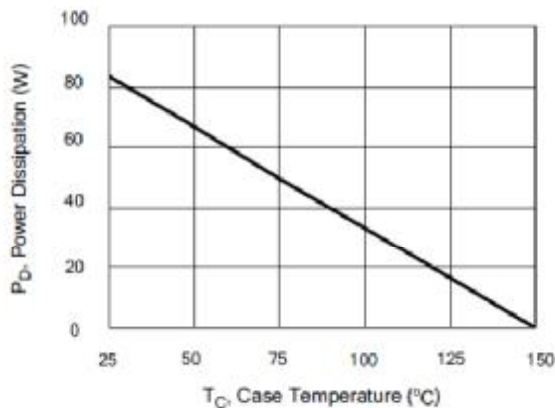


Figure 2. Maximum Power Dissipation vs Case Temperature

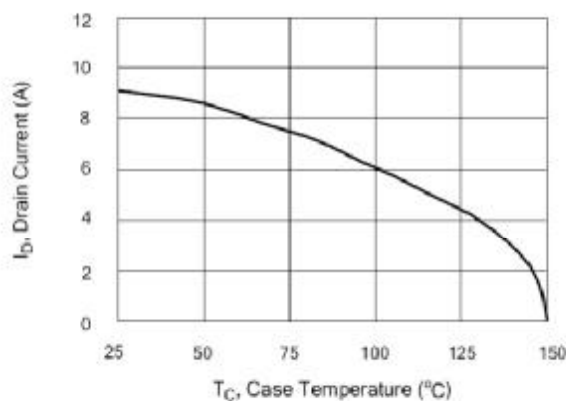


Figure 3. Maximum Continuous Drain Current vs Case Temperature

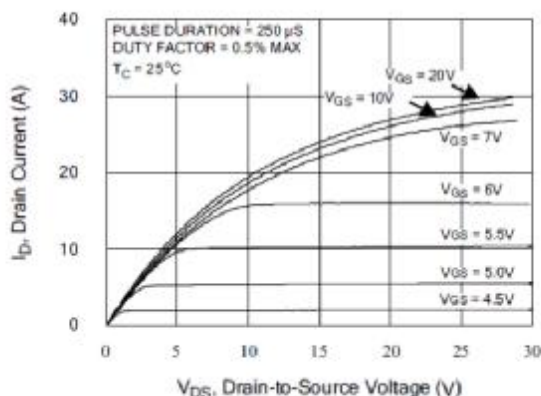


Figure 4. Typical Output Characteristics

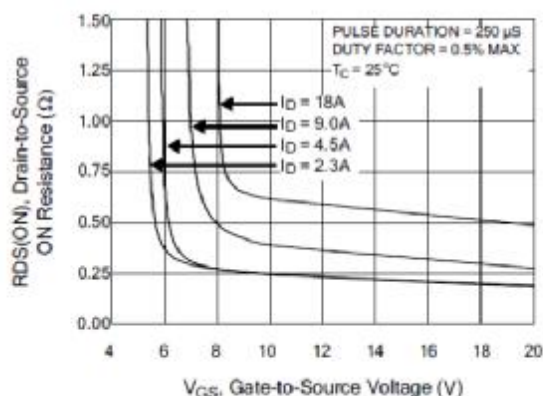


Figure 5. Typical Drain-to-Source ON Resistance vs Gate Voltage and Drain Current

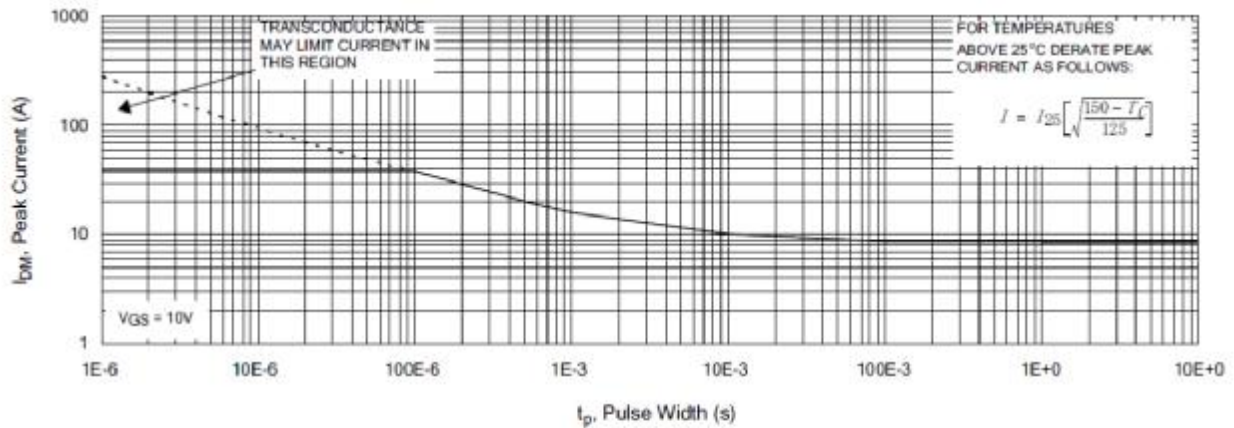


Figure 6. Maximum Peak Current Capability

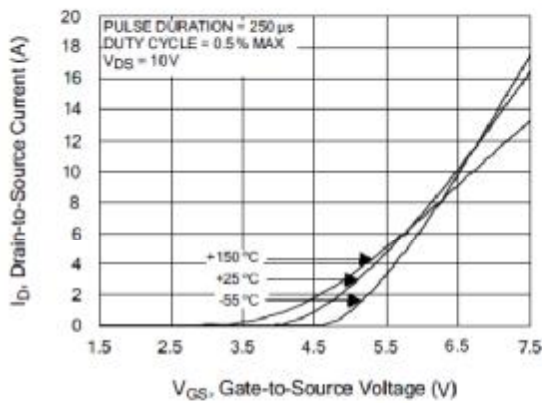


Figure 7. Typical Transfer Characteristics

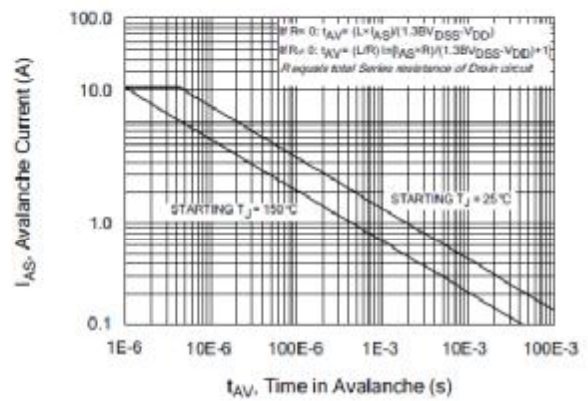


Figure 8. Unclamped Inductive Switching Capability

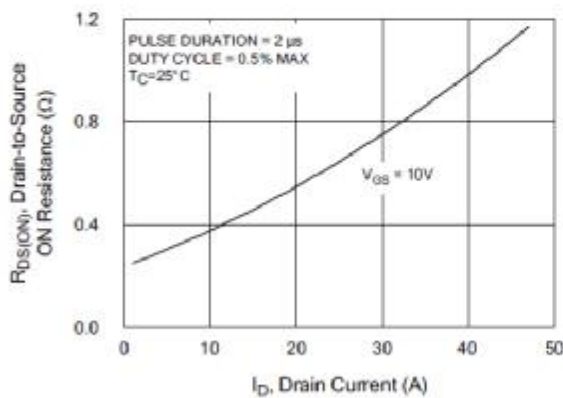


Figure 9. Typical Drain-to-Source ON Resistance vs Drain Current

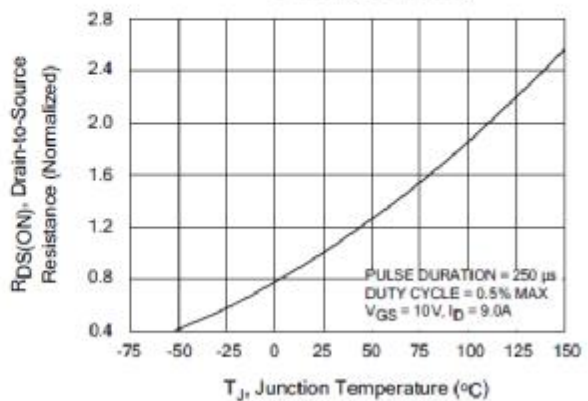


Figure 10. Typical Drain-to-Source ON Resistance vs Junction Temperature

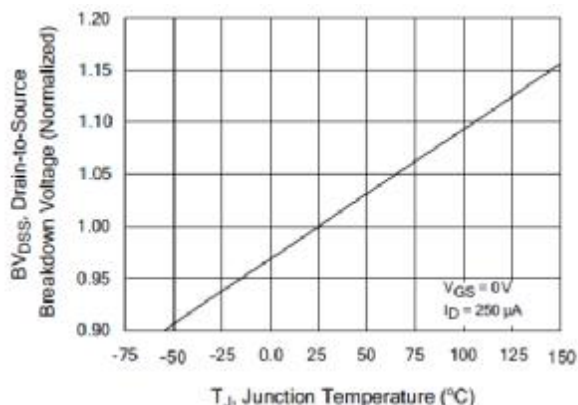


Figure 11. Typical Breakdown Voltage vs Junction Temperature

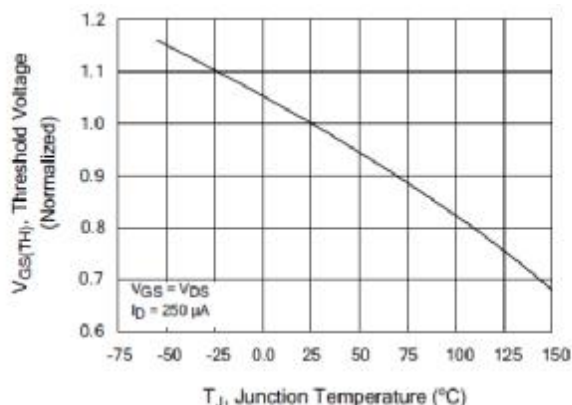


Figure 12. Typical Threshold Voltage vs Junction Temperature

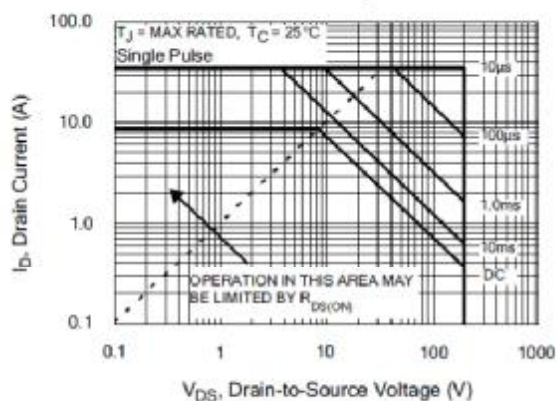


Figure 13. Maximum Forward Bias Safe Operating Area

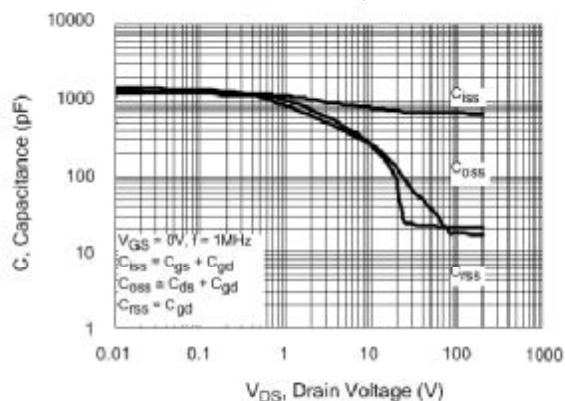


Figure 14. Typical Capacitance vs Drain-to-Source Voltage

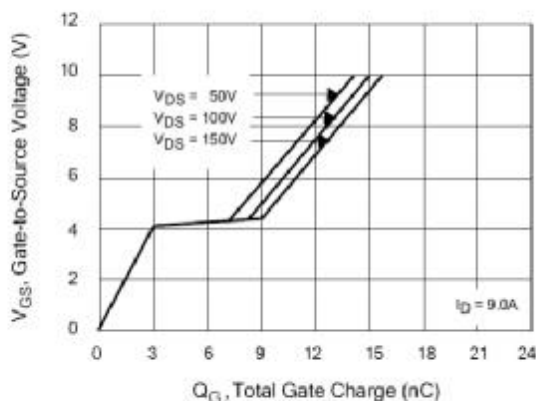


Figure 15. Typical Gate Charge vs Gate-to-Source Voltage

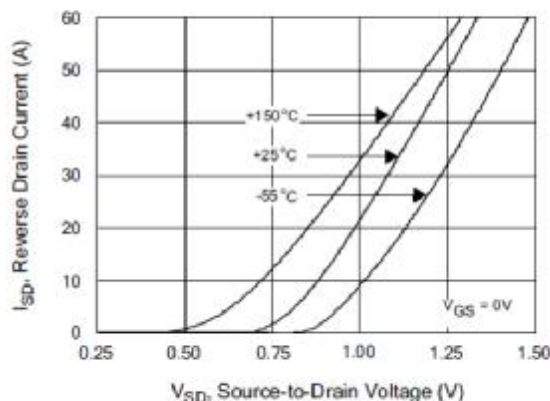


Figure 16. Typical Body Diode Transfer Characteristics