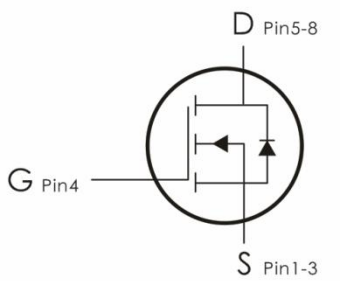
Description：

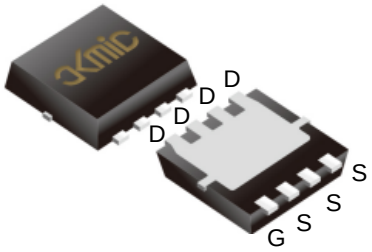
This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features：

1) V_{DS}=30V,I_D=60A,$R_{DS(ON)}$<7 mΩ @V_{GS}=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.



Absolute Maximum Ratings： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current	60	A
	Continuous Drain Current-T_C=100℃	38	
I_{DM}	Pulsed Drain Current[1]	200	
P_D	Power Dissipation	24	W
E_{AS}	Single pulse avalanche energy[2]	49	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	5.2	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient[3]	39	℃/W

Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
IRFH5306TRPBF-AK	AKMic	DFN5*6-8	5000 pcs/Reel

Electrical Characteristics: (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=30V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics (Note3)						
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.0	1.8	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[4]	V_{GS}=10V,I_D=20A	---	5.5	7	mΩ
		V_{GS}=4.5V,I_D=15A	---	8.5	11	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	1115	---	pF
C_{oss}	Output Capacitance		---	170.1	--	
C_{rss}	Reverse Transfer Capacitance		---	136.5	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=15V, I_D=15A, R_G=3Ω ,V_{GS}=10V	---	7.35	---	ns
t_r	Rise Time		---	15.7	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	26.2	---	ns
t_f	Fall Time		---	6.3	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=15V, I_D=20A	---	24.1	---	nc
Q_{gs}	Gate-Source Charge		---	4.7	---	nc
Q_{gd}	Gate-Drain “Miller” Charge		---	5.7	---	nc
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=30A	---	---	1.2	V
I_S	Continuous Drain Curren	V_D=V_G=0V	---	---	60	A
I_{SM}	Pulsed Drain Current		---	---	200	A
Trr	Reverse Recovery Time	I_F=20A,T_J=25℃ dI/dt=100A/us	---	10	---	ns
Qrr	Reverse Recovery Charge		---	3	---	nc

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting T_J=25C, V_{DD}=15V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=14A
3. $R_{\theta JA}$ is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

Typical Characteristics: (T_C=25℃ unless otherwise noted)

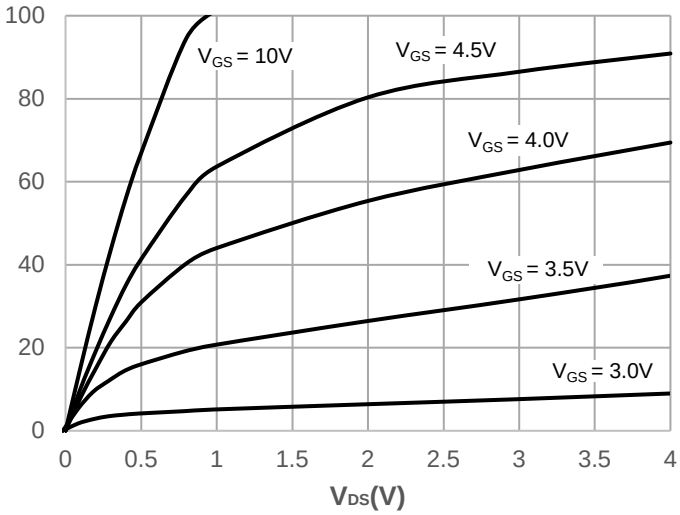


Figure 1: Output Characteristics

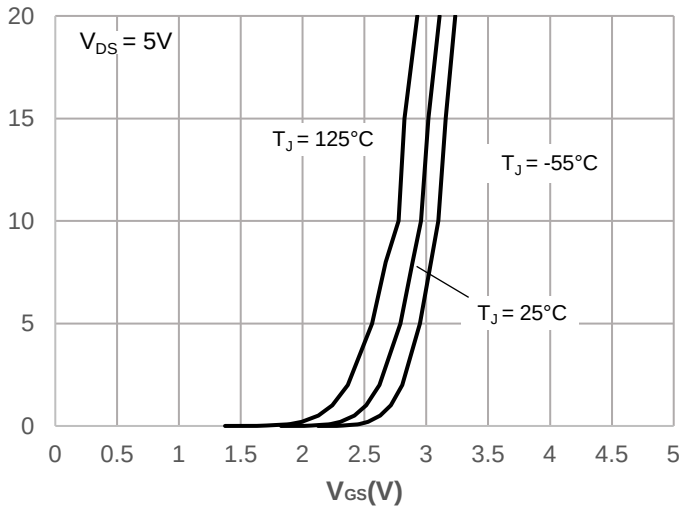


Figure 2: Typical Transfer Characteristics

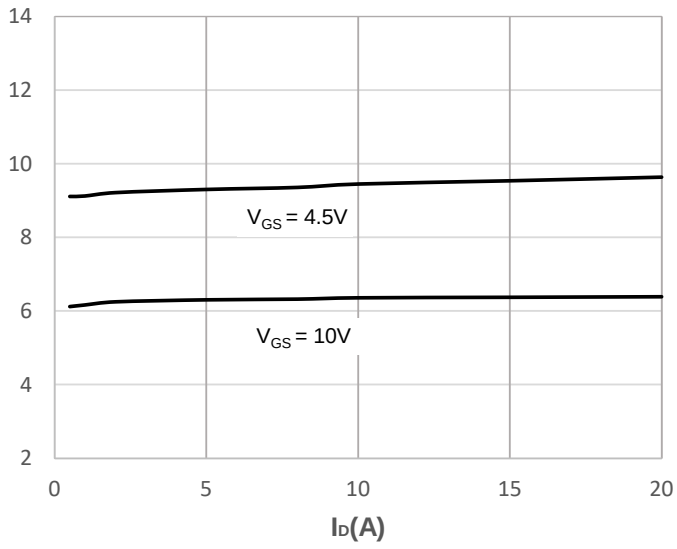


Figure 3: On-resistance vs. Drain Current

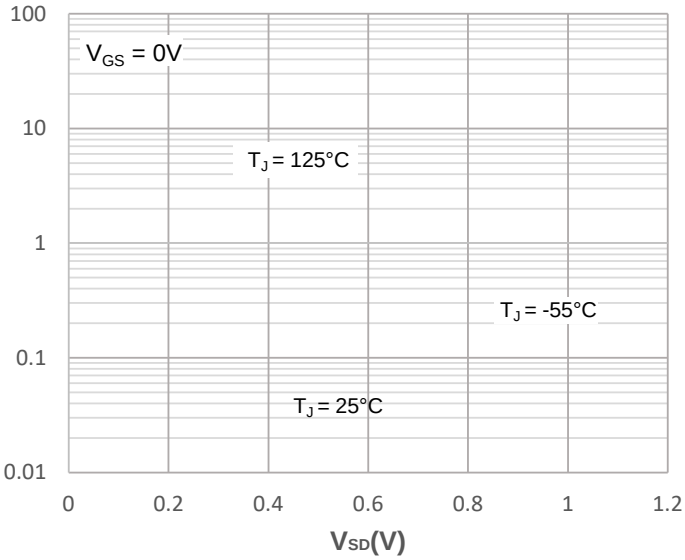


Figure 4: Body Diode Characteristics

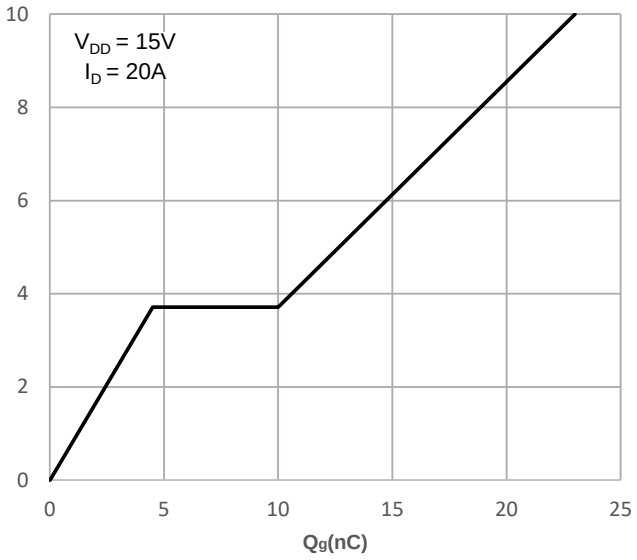


Figure 5: Gate Charge Characteristics

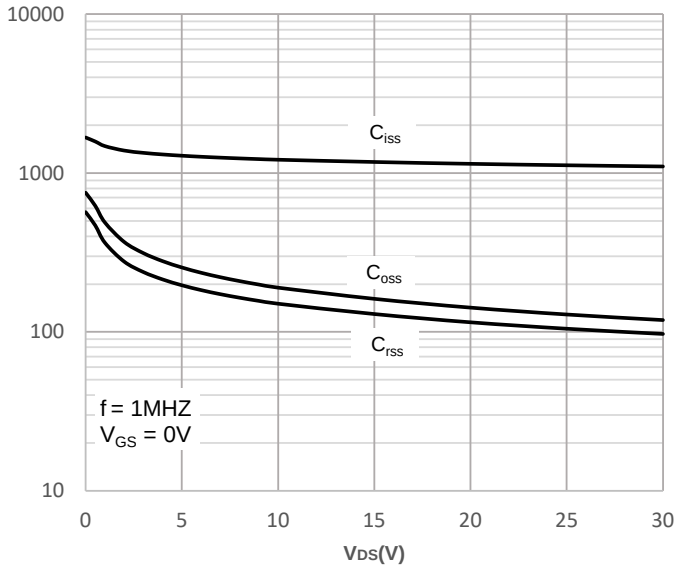


Figure 6: Capacitance Characteristics

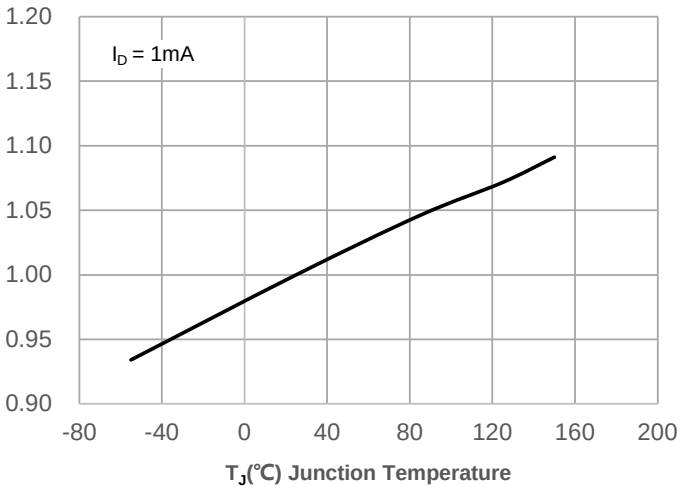


Figure 7: Normalized Breakdown voltage vs. Junction Temperature

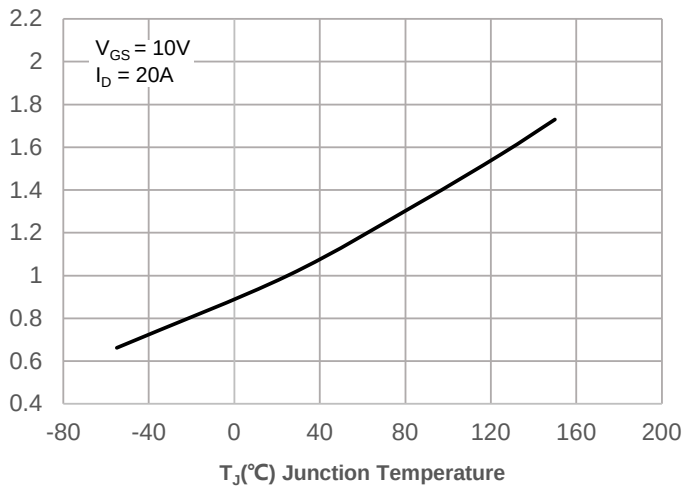


Figure 8: Normalized on Resistance vs. Junction Temperature

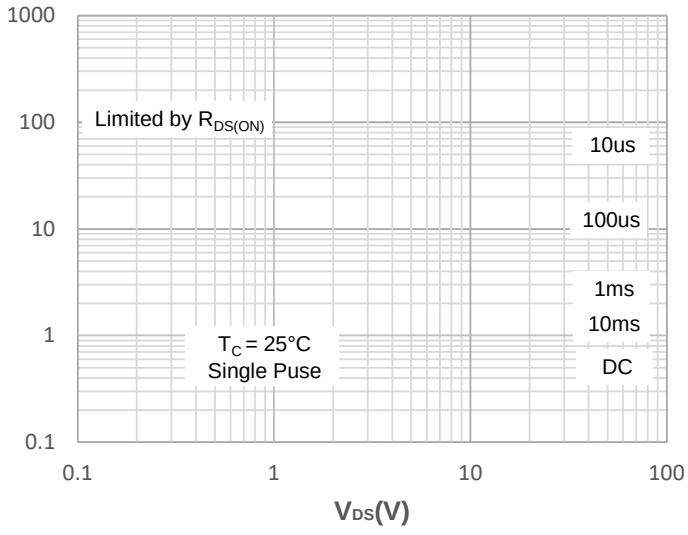


Figure 9: Maximum Safe Operating Area

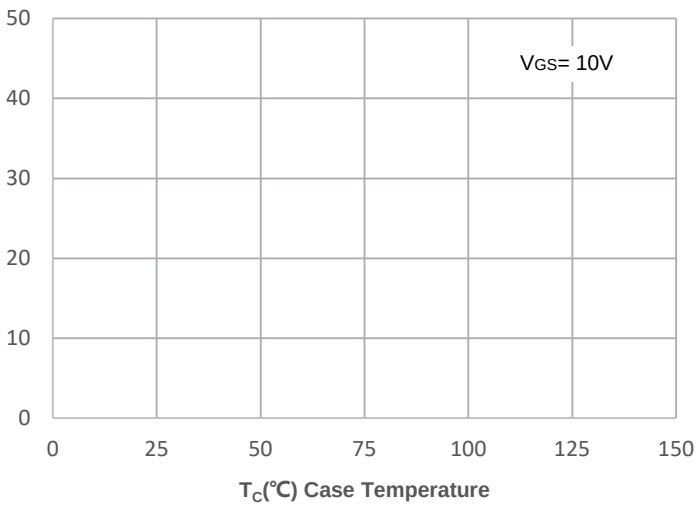


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

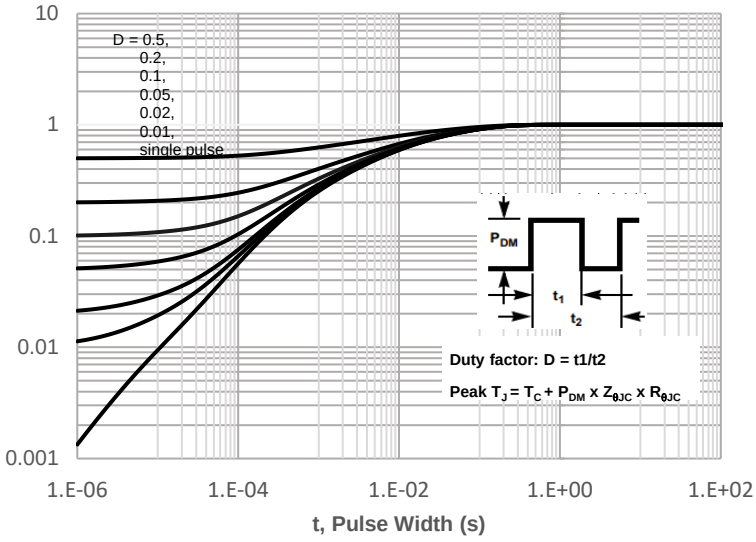


Figure 11: Normalized Maximum Transient Thermal Impedance

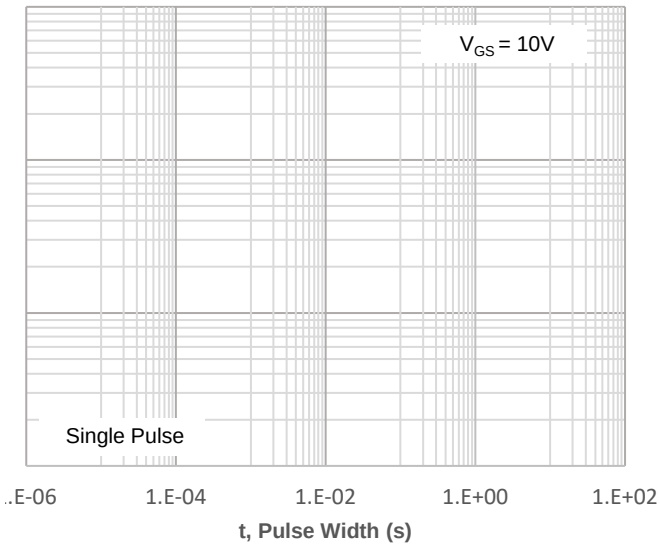


Figure 12: Peak Current Capacity

DFN5X6-8 Package Information：

