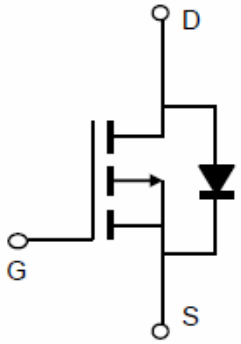
P-Channel MOSFET

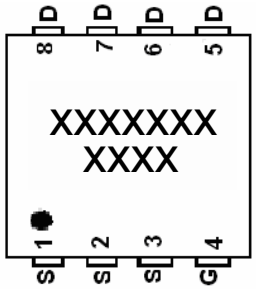
KI30P03DFN

■ Features

- $V_{DS\ (V)}$ =-30V
- I_D =-30 A (V_{GS} =±20V)
- $R_{DS(ON)}$ ＜15mΩ (V_{GS} =-10V)
- $R_{DS(ON)}$ ＜25mΩ (V_{GS} =-4.5V)



Schematic diagram



Marking and pin assignment

DFN3.3X3.3

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	-30	A
Continuous Drain Current (Tc=100℃)		-21.2	
Pulsed Drain Current Note 1	I_{DM}	-80	
Power Dissipation	P_D	35	W
Thermal Resistance.Junction- to-Case Note 2	R_{thJC}	3.57	℃/W
Junction Temperature	T_J	150	℃
Junction Storage Temperature Range	T_{stg}	-55 to 150	

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1		-1.9	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-15A			15	mΩ
		V_{GS}=-4.5V, I_D=-15A			25	
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-15A	15			S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-25V, f=1MHz		2130		pF
Output Capacitance	C_{oss}			302		
Reverse Transfer Capacitance	C_{rss}			227		
Total Gate Charge	Q_g	V_{GS}=-10V, V_{DS}=-15V, I_D=-20A		45.6		nC
Gate Source Charge	Q_{gs}			4.6		
Gate Drain Charge	Q_{gd}			11.1		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-15V, I_D=-15A,R_{GEN}=1Ω		12		ns
Turn-On Rise Time	t_r			10		
Turn-Off DelayTime	$t_{d(off)}$			25		
Turn-Off Fall Time	t_f			13		
Diode Forward Voltage Note 3	V_{SD}	I_S=-30A,V_{GS}=0V			-1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

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■ Typical Characterisitics

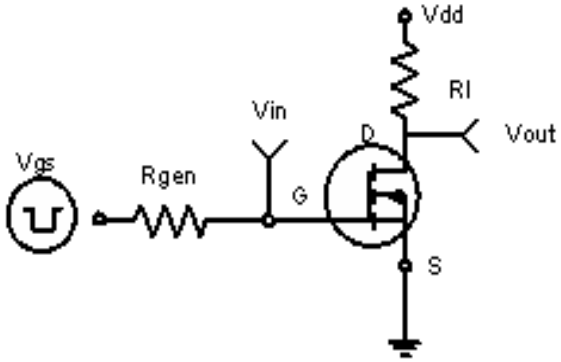

Figure 1:Switching Test Circuit

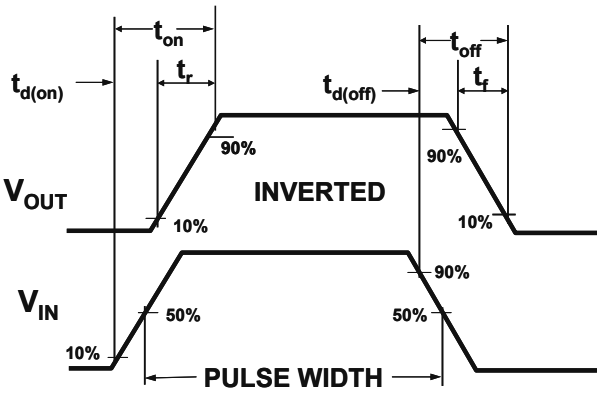

Figure 2:Switching Waveforms

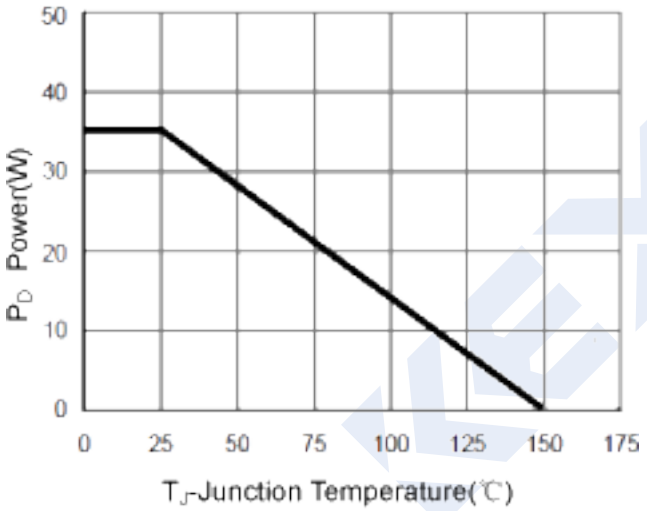

Figure 3 Power Dissipation

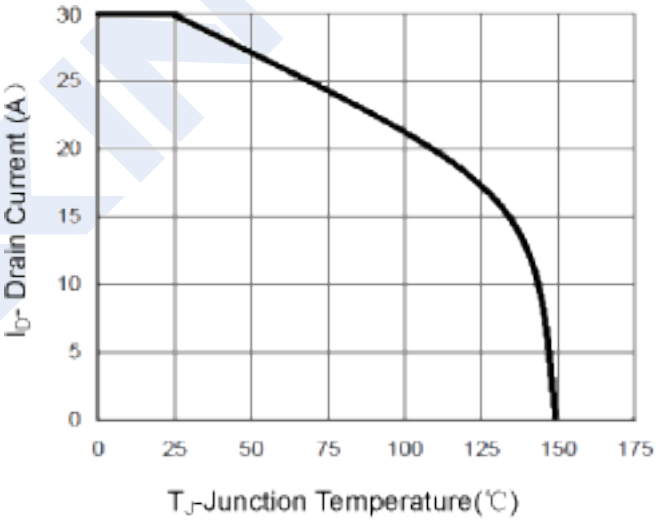

Figure 4 Drain Current

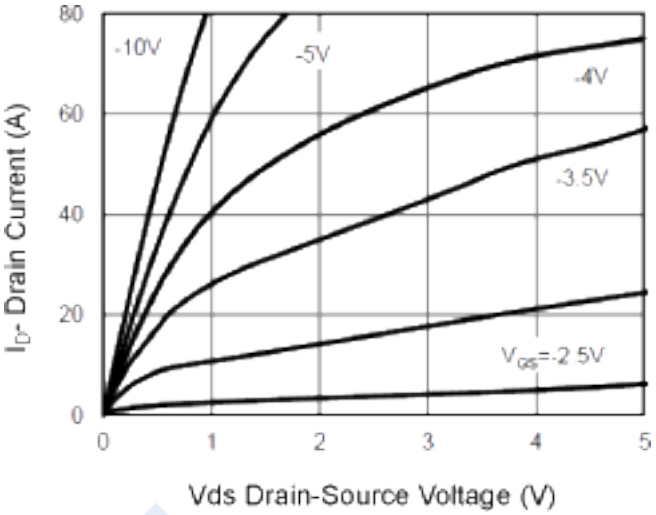

Figure 5 Output Characteristics

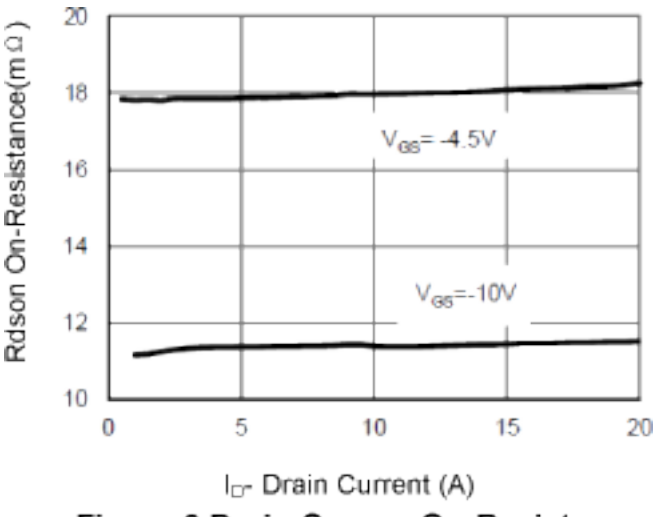

Figure 6 Drain-Source On-Resistance

P-Channel MOSFET

KI30P03DFN

■ Typical Characterisitics

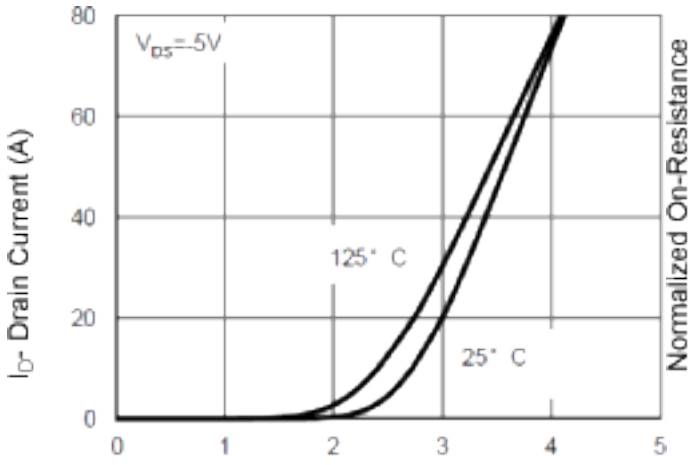

Figure 7 Transfer Characteristics

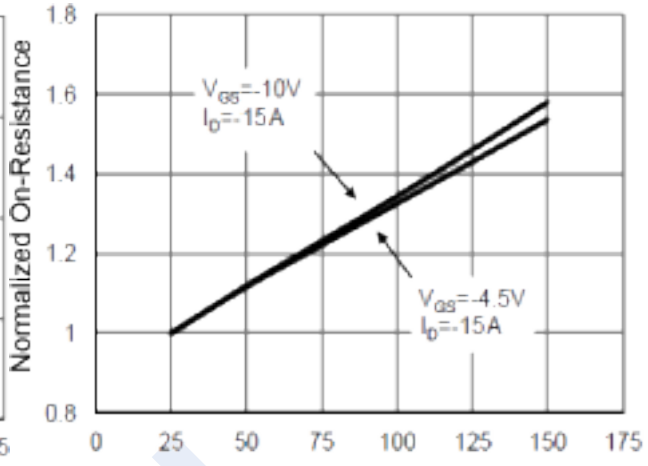

Figure 8 Drain-Source On-Resistance

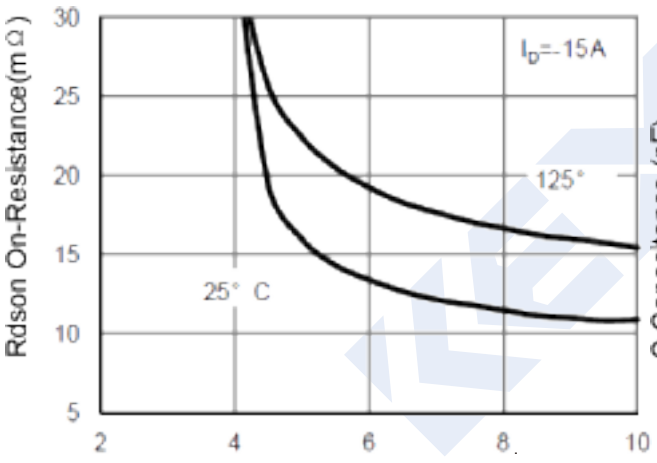

Figure 9 Rdson vs Vgs

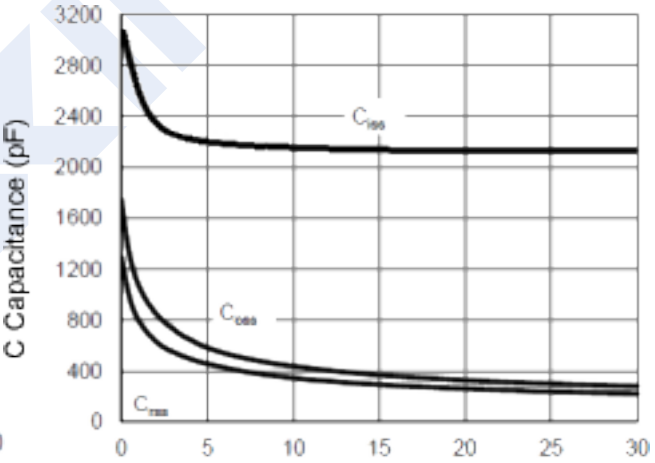

Figure 10 Capacitance vs Vds

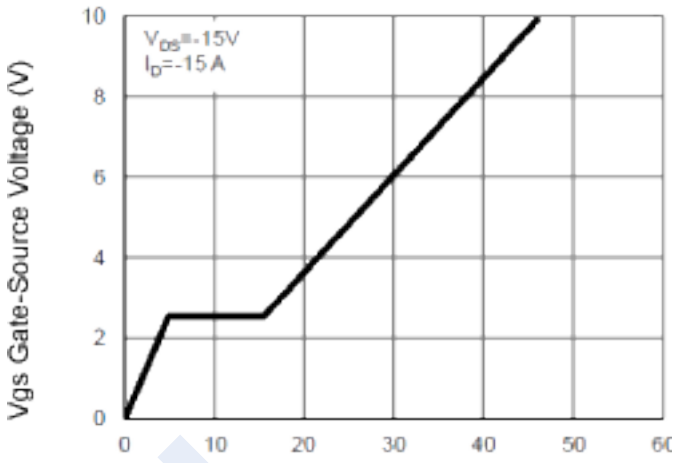

Figure 11 Gate Charge

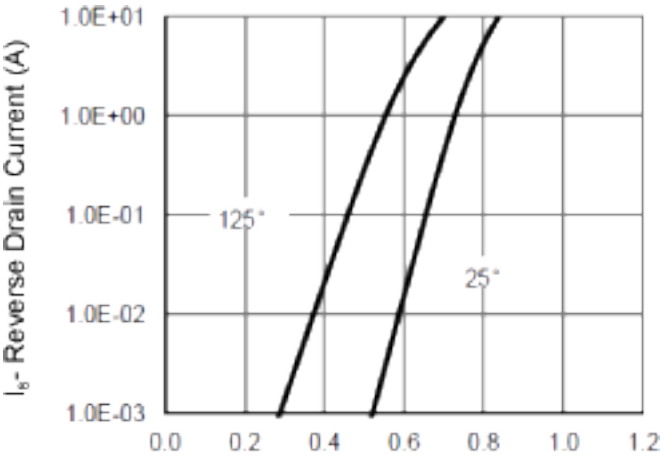

Figure 12 Source- Drain Diode Forward

P-Channel MOSFET

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■ Typical Characterisitics

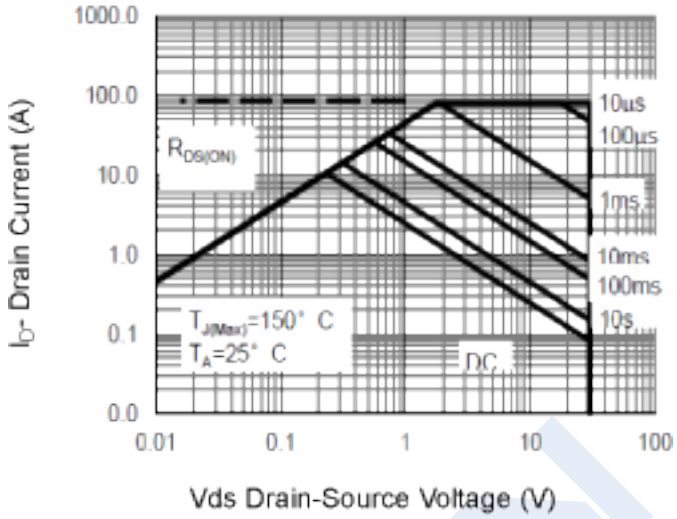


Figure 13 Safe Operation Area

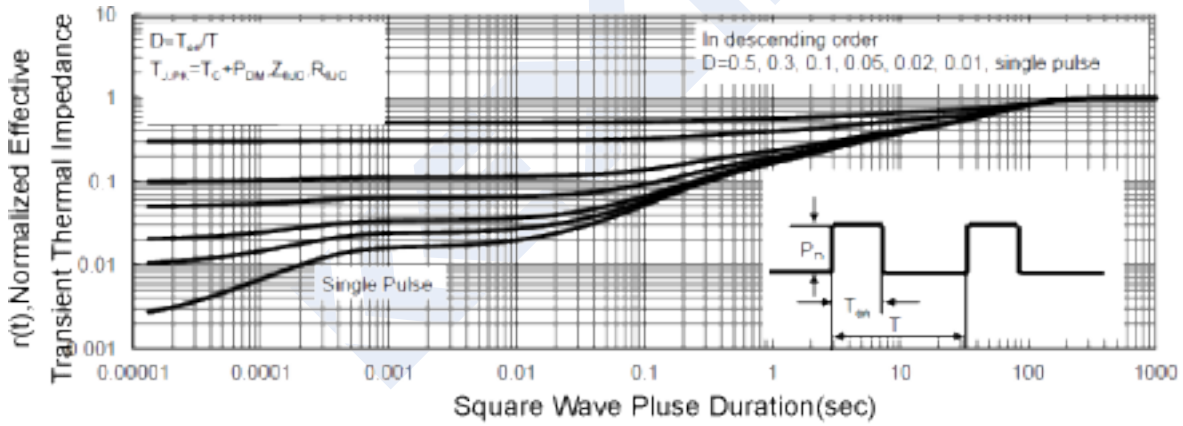
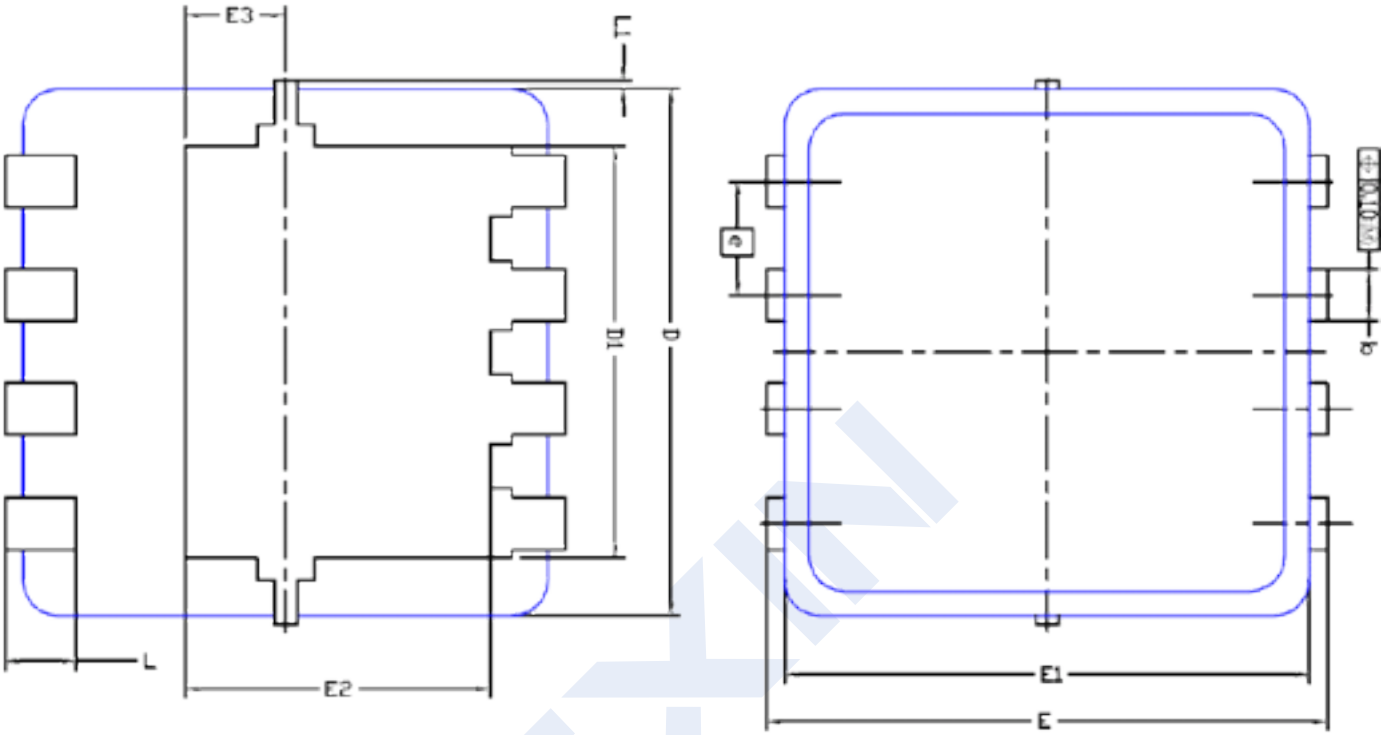


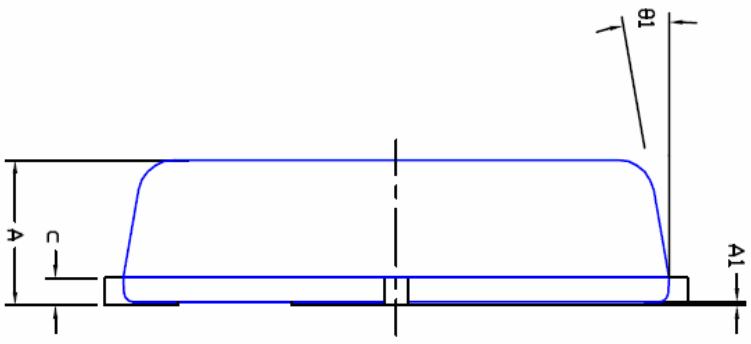
Figure 14 Normalized Maximum Transient Thermal Impedance

P-Channel MOSFET

KI30P03DFN

■ Typical Characterisitics





DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.80	0.900	0.0276	0.0315	0.0354
A1	0.00	---	0.05	0.000	---	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.10	0.152	0.25	0.004	0.006	0.010
D	3.00 BSC			0.118 BSC		
D1	2.35 BSC			0.093 BSC		
E	3.20 BSC			0.126 BSC		
E1	3.00 BSC			0.118 BSC		
E2	1.75 BSC			0.069 BSC		
E3	0.575 BSC			0.023 BSC		
e	0.65 BSC			0.026 BSC		
L	0.30	0.40	0.50	0.0118	0.0157	0.0197
L1	0	---	0.100	0	---	0.004
θ1	0°	10°	12°	0°	10°	12°