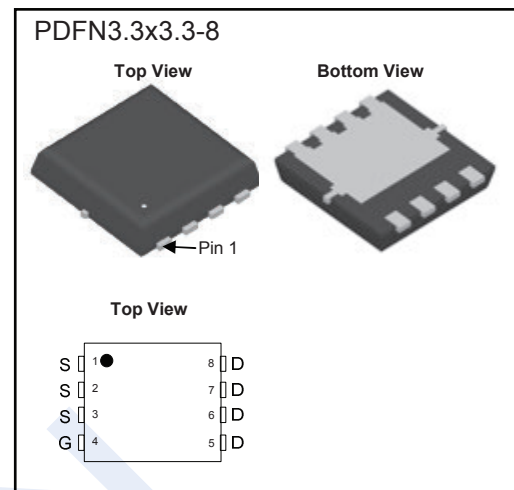
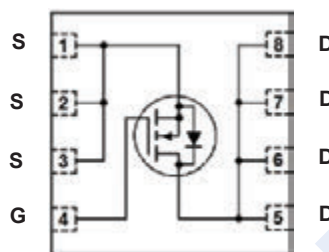


## N-Channel MOSFET

## 2KK5082DFN

## ■ Features

- $V_{DS} (V) = 40 V$
- $I_D = 35 A$  (at  $V_{GS} = 10 V$ )
- $R_{DS(ON)}$  (at  $V_{GS} = 10 V$ )  $< 15 m\Omega$
- $R_{DS(ON)}$  (at  $V_{GS} = 4.5 V$ )  $< 19 m\Omega$

■ Absolute Maximum Ratings ( $T_A = 25^\circ C$  unless otherwise noted)

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	40	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$		
Continuous Drain Current (Note 1, 3)	$I_D$	$T_A = 25^\circ C$	35	A
		$T_A = 100^\circ C$	27	
Pulsed Drain Current (Note 2)	$I_{DM}$	70		
Power Dissipation	PD	$T_A = 25^\circ C$	25	W
		$T_A = 100^\circ C$	9	
Junction Temperature	$T_J$	150	$^\circ C$	
Storage Temperature Range	$T_{stg}$	-55 to 150		

Notes:

1. The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ C$ . The value in any given application depends on the user's specific board design.
2. Repetitive rating, pulse width limited by junction temperature.
3. The current rating is based on the  $t \leq 10s$  junction to ambient thermal resistance rating.

## N-Channel MOSFET

## 2KK5082DFN

■ Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D = 250\ \mu\text{A}$ , $V_{GS} = 0\text{V}$	40			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 40\text{V}$ , $V_{GS} = 0\text{V}$			1	$\mu\text{A}$
Gate to Source Leakage Current	$I_{GSS}$	$V_{DS} = 0\text{V}$ , $V_{GS} = \pm 20\text{V}$			$\pm 100$	nA
Gate to Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250\ \mu\text{A}$	1.0		2.2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$ , $I_D = 20\text{A}$		11	15	m $\Omega$
		$V_{GS} = 4.5\text{V}$ , $I_D = 15\text{A}$		15	19	
Forward Transconductance	$g_{FS}$	$V_{DS} = 5\text{V}$ , $I_D = 20\text{A}$	20			S
<b>Dynamic Characteristics (Note4)</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0\text{V}$ , $V_{DS} = 20\text{V}$ , $f = 1\text{MHz}$		980	1200	pF
Output Capacitance	$C_{oss}$			130		
Reverse Transfer Capacitance	$C_{rss}$			80		
Total Gate Charge	$Q_g$	$V_{GS} = 10\text{V}$ , $V_{DS} = 20\text{V}$ , $I_D = 20\text{A}$		17		nC
Gate Source Charge	$Q_{gs}$			2.5		
Gate Drain Charge	$Q_{gd}$			4.5		
<b>Switching Characteristics (Note 4)</b>						
Turn-On DelayTime	$t_{d(on)}$	$V_{GS} = 10\text{V}$ , $V_{DS} = 20\text{V}$ , $R_L = 1\ \Omega$ , $R_{GEN} = 3\ \Omega$		6		ns
Turn-On Rise Time	$t_r$			12		
Turn-Off DelayTime	$t_{d(off)}$			26		
Turn-Off Fall Time	$t_f$			7		
<b>Drain-Source Diode Characteristics (Note 2,3)</b>						
Maximum Body-Diode Continuous Current	$I_S$				35	A
Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0\text{V}$ , $I_S = 1\text{A}$		0.75	1.2	V

Notes:

1. Repetitive rating, pulse width limited by junction temperature.
2. Surface Mounted on FR4 Board,  $t \leq 10\text{ sec}$ .
3. Pulse Test: Pulse Width  $\leq 300\ \mu\text{s}$ , Duty Cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to production

## ■ Marking

Marking	K5082 KC***
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## N-Channel MOSFET

### 2KK5082DFN

#### ■ Typical Electrical And Thermal Characteristics

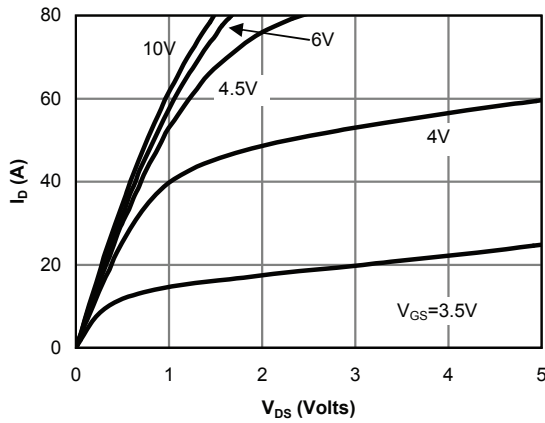


Fig 1: On-Region Characteristics

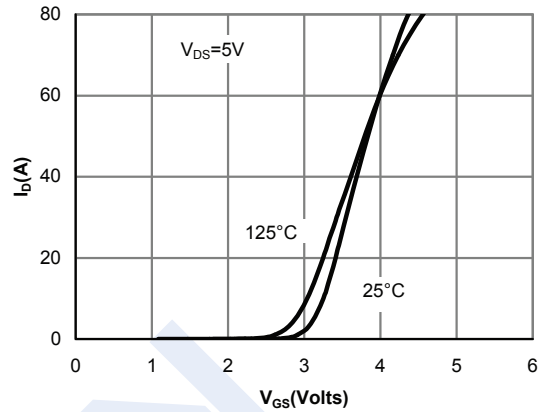


Figure 2: Transfer Characteristics

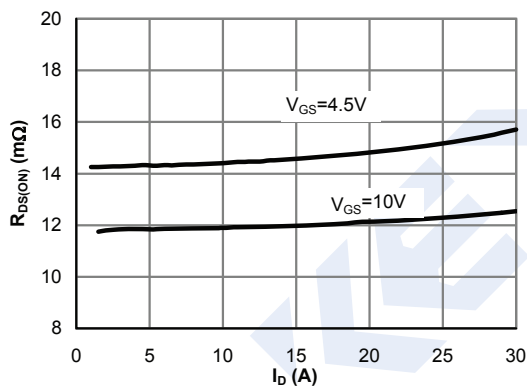


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

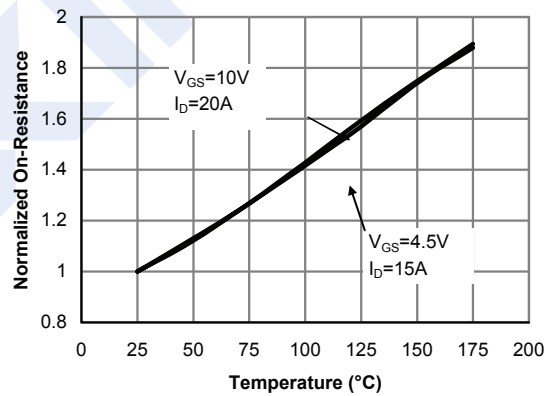


Figure 4: On-Resistance vs. Junction Temperature

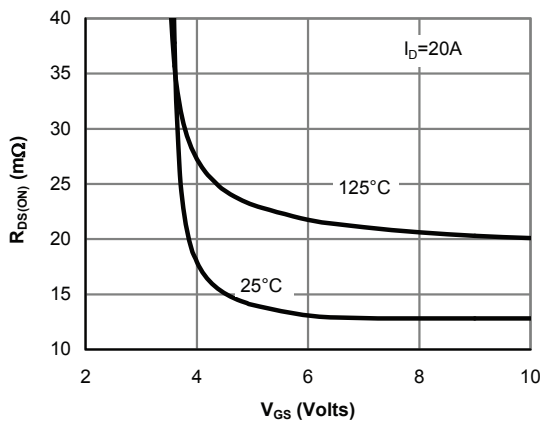


Figure 5: On-Resistance vs. Gate-Source Voltage

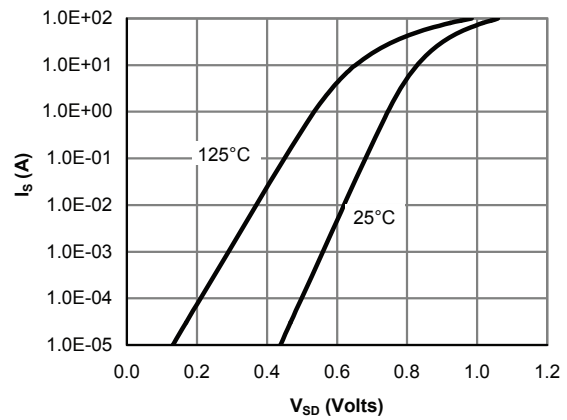


Figure 6: Body-Diode Characteristics

# N-Channel MOSFET

## 2KK5082DFN

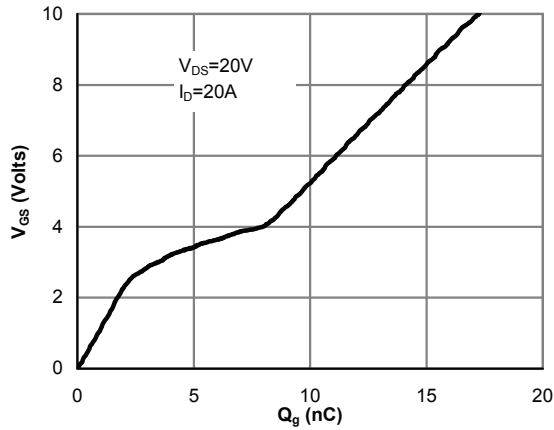


Figure 7: Gate-Charge Characteristics

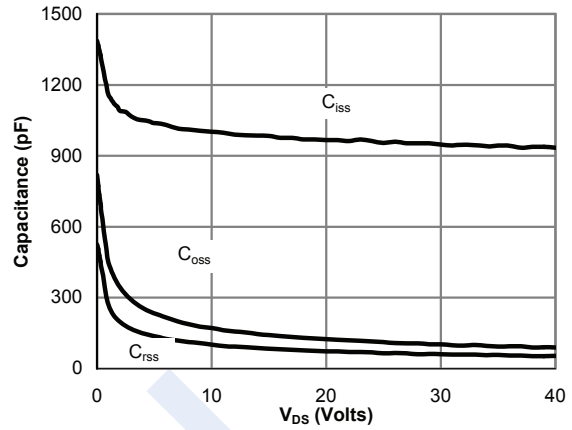


Figure 8: Capacitance Characteristics

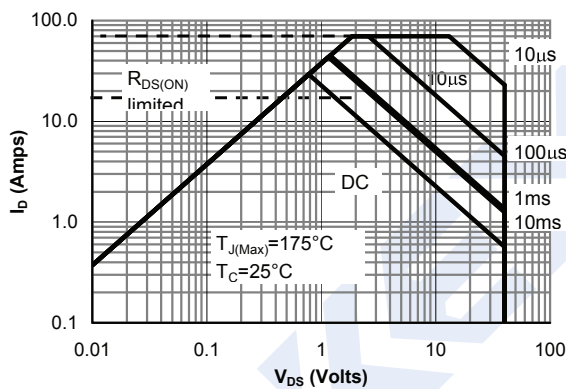


Figure 9: Maximum Forward Biased Safe Operating Area

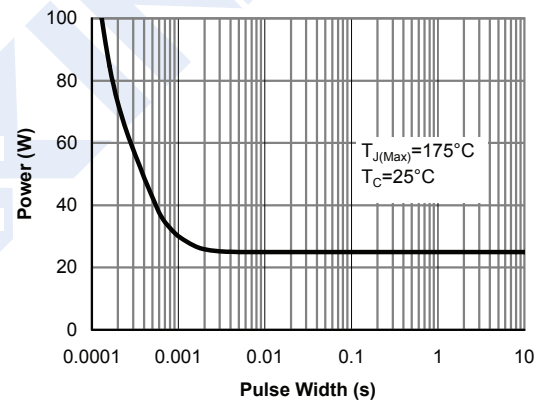


Figure 10: Single Pulse Power Rating Junction-to-Case

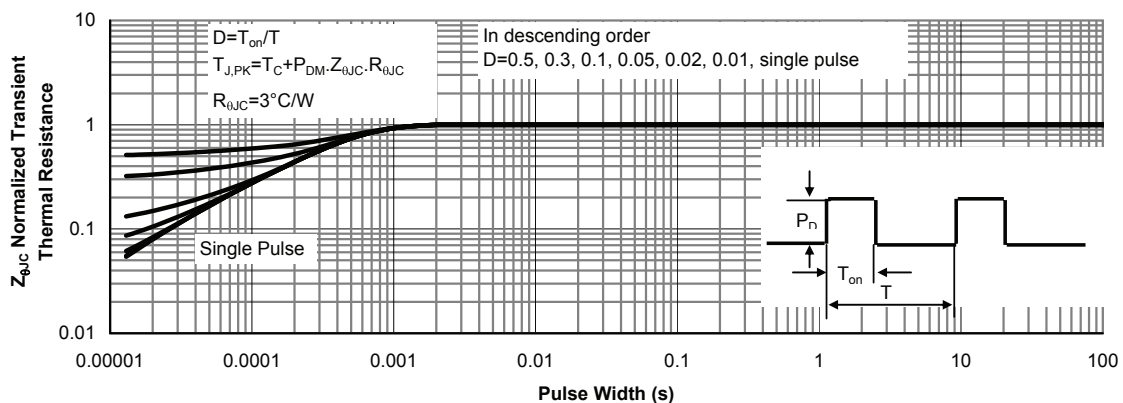
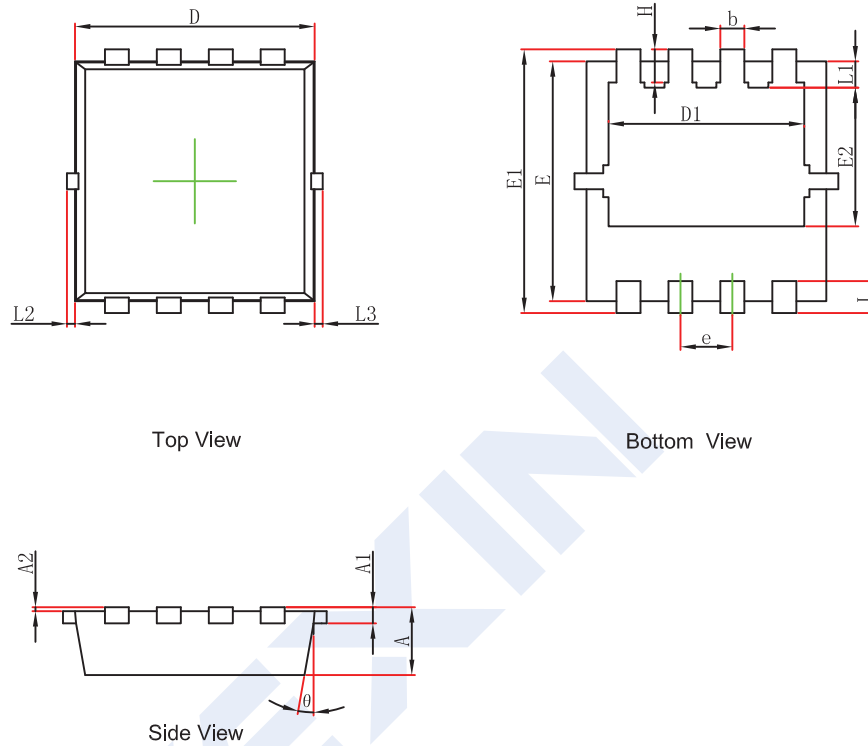


Figure 11: Normalized Maximum Transient Thermal Impedance

## N-Channel MOSFET

## 2KK5082DFN

## ■ PDFN3.3x3.3-8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	3.050	3.250	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
$\theta$	9°	13°	9°	13°