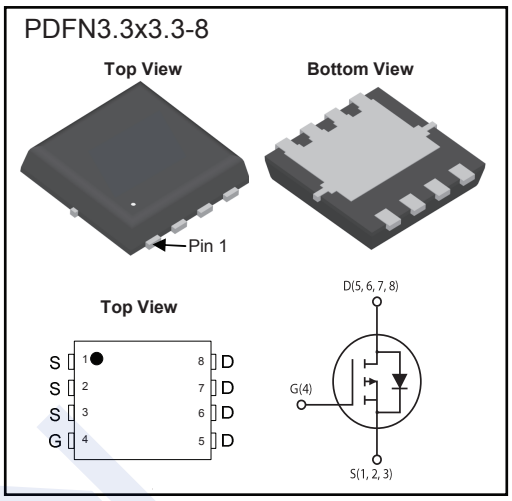
P-Channel MOSFET

2KJ7103DFN



■ Features

- V_{DS} (V) = -30V, I_D = -6A
- $R_{DS(ON)}$ = 24mΩ @ V_{GS}=-10V (Typ.)
- $R_{DS(ON)}$ = 38mΩ @ V_{GS}=-4.5V (Typ.)

■ Absolute Maximum Ratings (Tc = 25℃ Unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-source voltage	-30	V
V_{GS}	Gate-source voltage	± 20	V
I_D (1)	Drain current (continuous) at T_C = 25 °C	-6	A
I_D (1)	Drain current (continuous) at T_C = 100 °C	-3.8	A
I_{DM} (1)(2)	Drain current (pulsed)	-24	A
P_{TOT}	Total dissipation at T_C = 25 °C	2.9	W
$R_{thj\text{-}case}$	Thermal resistance junction-case max	2.50	°C/W
$R_{thj\text{-}pcb}$ (3)	Thermal resistance junction-pcb, single operation	42.8	°C/W
T_{stg}	Storage temperature	- 55 to 150	°C
T_j	Max. operating junction temperature	150	°C

Notes:

(1)The value is rated according $R_{thj\text{-}pcb}$.

(2)Pulse width limited by safe operating area.

(3)When mounted on FR-4 board of 1inch², 2oz Cu, t<10 sec.

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■ Electrical Characteristics (T_C = 25℃ Unless otherwise noted)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-source breakdown voltage	V_{GS} = 0, I_D = -250 μA	-30			V
I_{DSS}	Zero gate voltage drain current	V_{GS} = 0, V_{DS} = -30 V			-1	μA
		V_{GS} = 0, V_{DS} = -30 V T_C = 125 °C			-10	μA
I_{GSS}	Gate-body leakage current	V_{DS} = 0, V_{GS} = ± 20 V			±100	nA
$V_{GS(th)}$	Gate threshold voltage	V_{DS} = V_{GS}, I_D = -250 μA	-1			V
$R_{DS(on)}$	Static drain-source on-resistance	V_{GS} = -10 V, I_D = -3 A		0.024	0.03	Ω
		V_{GS} = -4.5 V, I_D = 3 A		0.038	0.05	Ω
C_{iss}	Input capacitance	V_{DS} = -25 V f = 1 MHz V_{GS} = 0	-	1450	-	pF
C_{oss}	Output capacitance		-	178	-	pF
C_{rss}	Reverse transfer capacitance		-	120	-	pF
Q_g	Total gate charge	V_{DD} = -24 V, I_D = -6 A, V_{GS} = -4.5 V	-	12	-	nC
Q_{gs}	Gate-source charge		-	4.4	-	nC
Q_{gd}	Gate-drain charge		-	5	-	nC
$t_{d(on)}$	Turn-on delay time	V_{DD} = -24 V, I_D = -3 A R_G = 4.7 Ω V_{GS} = -10 V	-	15	-	ns
t_r	Rise time		-	15	-	ns
$t_{d(off)}$	Turn-off delay time		-	24	-	ns
t_f	Fall time		-	21	-	ns
V_{SD}	Forward on voltage	I_{SD} = -6 A, V_{GS} = 0	-		-1.1	V
t_{rr}	Reverse recovery time	I_{SD} = -6 A, di/dt = -100 A/μs V_{DD} = -16 V, T_j = 150 °C	-	15		ns
Q_{rr}	Reverse recovery charge		-	6.5		nC
I_{RRM}	Reverse recovery current		-	-0.9		A

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■ Typical Characterisitics (TJ = 25 °C unless otherwise noted)

Figure 2: Safe operating area

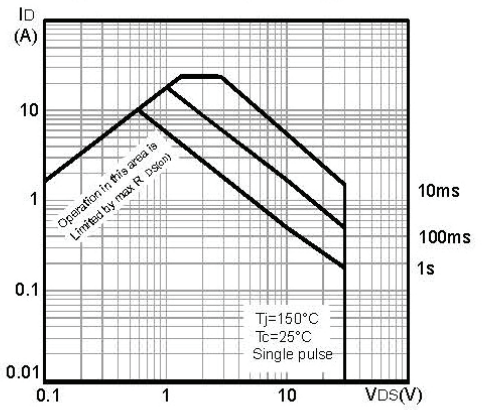

Figure 3: Thermal impedance

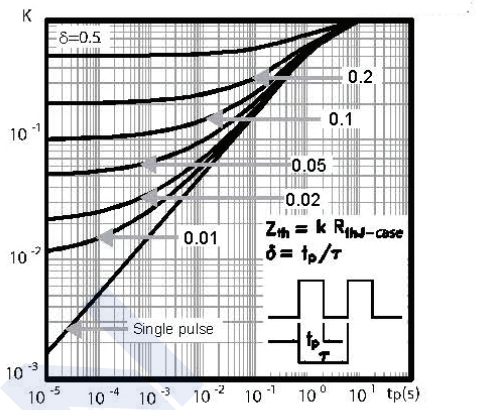

Figure 4: Output characteristics

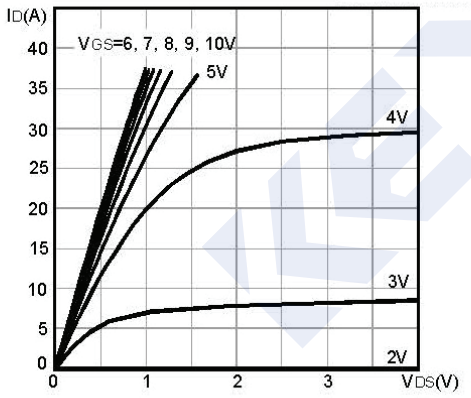

Figure 5: Transfer characteristics

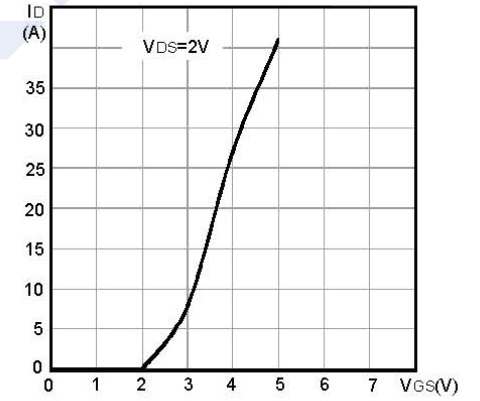

Figure 6: Gate charge vs gate-source voltage

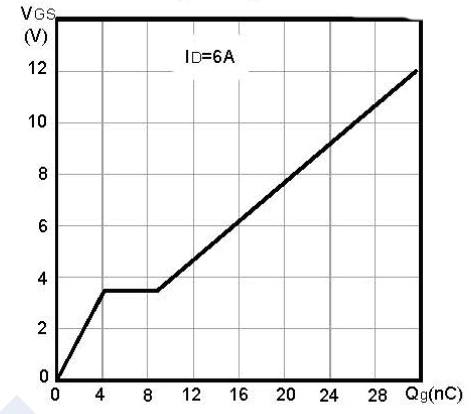

Figure 7: Static drain-source on-resistance

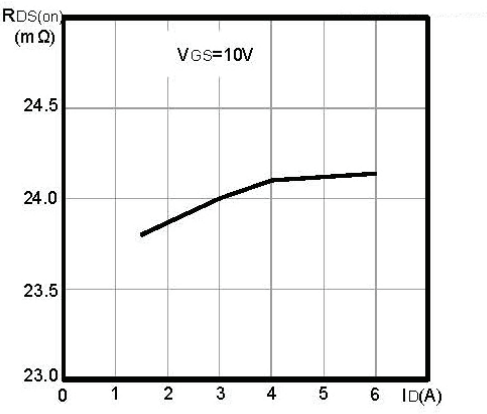

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Figure 8: Capacitance variations

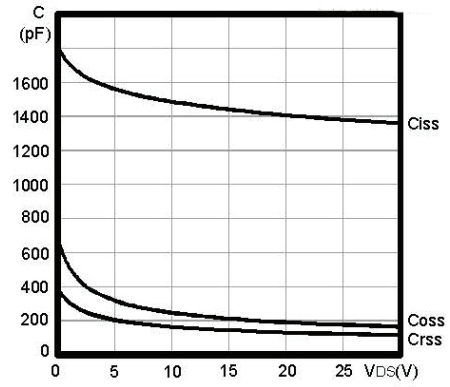


Figure 9: Normalized gate threshold voltage vs temperature

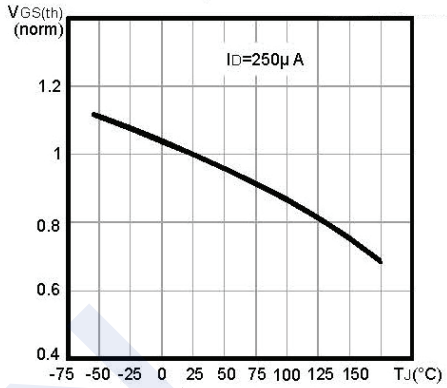


Figure 10: Normalized on-resistance vs temperature

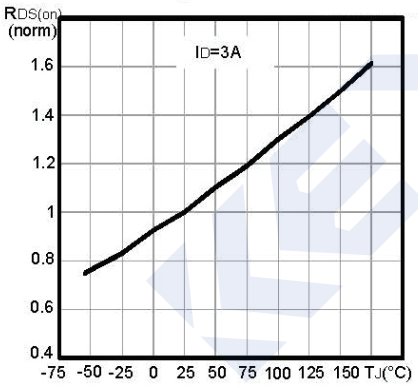


Figure 11: Normalized VDS vs temperature

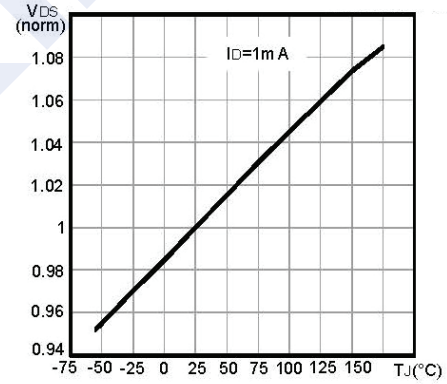
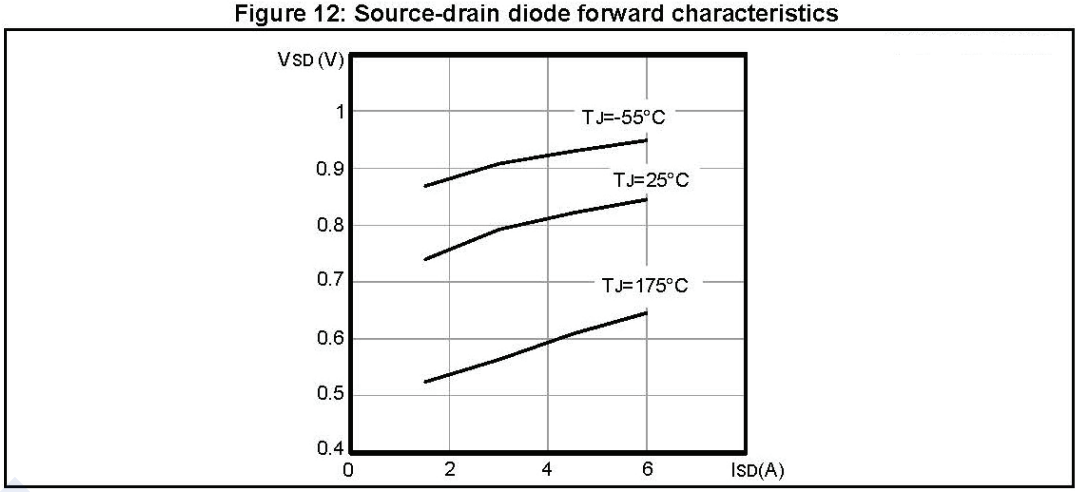


Figure 12: Source-drain diode forward characteristics



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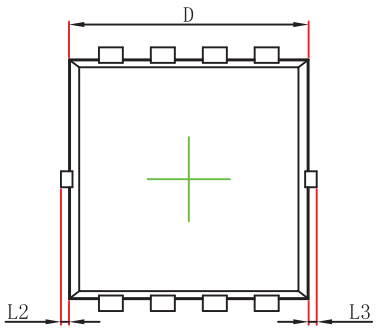
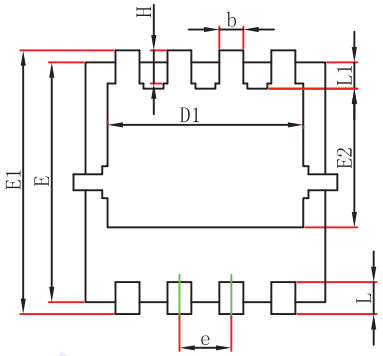
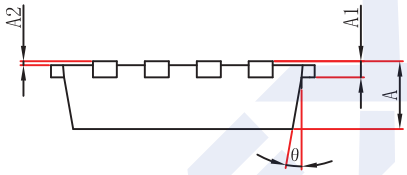
■ **PDFN3.3x3.3-8 Package Outline Dimensions**



Top View



Bottom View



Side View

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	2.900	3.100	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
θ	9°	13°	9°	13°