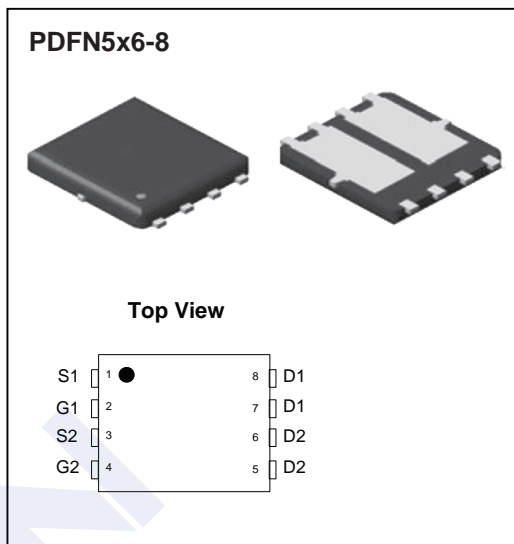
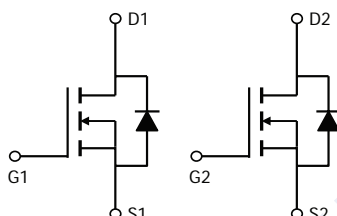


Dual N-Channel MOSFET

2KK6005DFN

■ Features

- V_{DS} (V) = 60 V
- $I_{D_{MAX}}$ (at $V_{GS} = 10$ V) = 7.8 A
- $R_{DS(ON)}$ (at $V_{GS} = 10$ V) = 22.5 m Ω (Typ.)

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

Symbol	Parameter	Value	Unit
V_{GS}	Gate-source voltage	± 20	V
V_{DS}	Drain-source voltage	60	V
$I_D^{(1)}$	Drain current (continuous) at $T_C = 25^\circ\text{C}$	20	A
I_D	Drain current (continuous) at $T_C = 100^\circ\text{C}$	20	A
$I_D^{(2)}$	Drain current (continuous) at $T_{pcb} = 25^\circ\text{C}$	7.8	A
	Drain current (continuous) at $T_{pcb} = 100^\circ\text{C}$	5.5	A
$I_{DM}^{(2)/(3)}$	Drain current (pulsed)	31.2	A
P_{TOT}	Total dissipation at $T_C = 25^\circ\text{C}$	65	W
$P_{TOT}^{(2)}$	Total dissipation at $T_{pcb} = 25^\circ\text{C}$	4.3	W
I_{AV}	Non-repetitive avalanche current	7.8	A
$E_{AS}^{(4)}$	Single pulse avalanche energy	190	mJ
$R_{thj-case}$	Thermal resistance junction-case	2.3	$^\circ\text{C/W}$
$R_{thj-pcb}^{(1)}$	Thermal resistance junction-pcb	35	
T_j	Operating junction temperature range	-55 to 175	$^\circ\text{C}$
T_{stg}	Storage temperature range		$^\circ\text{C}$

Notes:

(1) Current is limited by bonding, with $R_{thjC} = 2.3^\circ\text{C/W}$; the chip is able to carry 30 A at 25°C .

(2) When mounted on an 1 inch² 2 Oz. Cu board, $t < 10$ s

(3) Pulse width is limited by safe operating area.

(4) Starting $T_j = 25^\circ\text{C}$, $I_D = I_{AS}$, $V_{DD} = 25$ V

(5) When mounted on an 1 inch² 2 Oz. Cu board, $t < 10$ s

Dual N-Channel MOSFET

2KK6005DFN

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

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-source breakdown voltage	$V_{GS} = 0\text{ V}$, $I_D = 250\ \mu\text{A}$	60			V
I_{DSS}	Zero gate voltage drain current	$V_{GS} = 0\text{ V}$, $V_{DS} = 60\text{ V}$			1	μA
I_{GSS}	Gate-body leakage current	$V_{DS} = 0\text{ V}$, $V_{GS} = \pm 20\text{ V}$			± 100	nA
$V_{GS(th)}$	Gate threshold voltage	$V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{A}$	1		2.5	V
$R_{DS(on)}$	Static drain-source on-resistance	$V_{GS} = 10\text{ V}$, $I_D = 4\text{ A}$		22.5	30	$\text{m}\Omega$
		$V_{GS} = 5\text{ V}$, $I_D = 4\text{ A}$		30	44	$\text{m}\Omega$
C_{iss}	Input capacitance	$V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$, $V_{GS} = 0\text{ V}$	-	668	-	pF
C_{oss}	Output capacitance		-	144	-	pF
C_{rss}	Reverse transfer capacitance		-	14	-	pF
Q_g	Total gate charge	$V_{DD} = 30\text{ V}$, $I_D = 7.8\text{ A}$, $V_{GS} = 0\text{ to }10\text{ V}$	-	13	-	nC
Q_{gs}	Gate-source charge		-	2.4	-	nC
Q_{gd}	Gate-drain charge		-	3	-	nC
R_G	Intrinsic gate resistance	$f = 1\text{ MHz}$ open drain	-	4	-	Ω
$t_{d(on)}$	Turn-on delay time	$V_{DD} = 30\text{ V}$, $I_D = 4\text{ A}$, $R_G = 4.7\ \Omega$, $V_{GS} = 10\text{ V}$	-	9	-	ns
t_r	Rise time		-	7.7	-	ns
$t_{d(off)}$	Turn-off delay time		-	32.5	-	ns
t_f	Fall time		-	5	-	ns
I_{SD}	Source-drain current		-		7.8	A
$I_{SDM}^{(1)}$	Source-drain current (pulsed)		-		31.2	A
$V_{SD}^{(2)}$	Forward on voltage	$V_{GS} = 0\text{ V}$, $I_{SD} = 7.8\text{ A}$	-		1.3	V
t_{rr}	Reverse recovery time	$I_{SD} = 7.8\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$, $V_{DD} = 48\text{ V}$, $T_J = 150^\circ\text{C}$	-	30		ns
Q_{rr}	Reverse recovery charge		-	35		nC
I_{RRM}	Reverse recovery current		-	2.35		A

Notes:

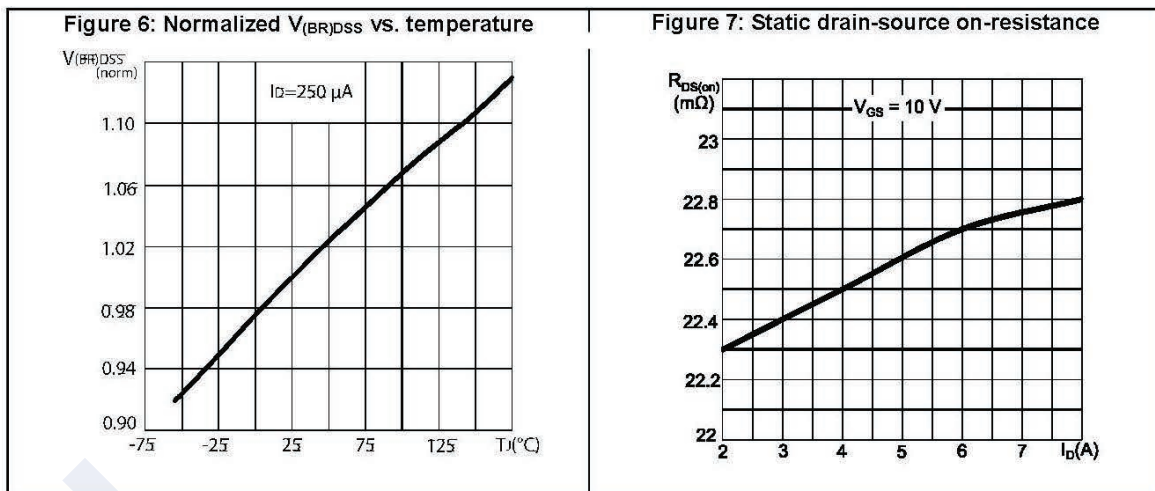
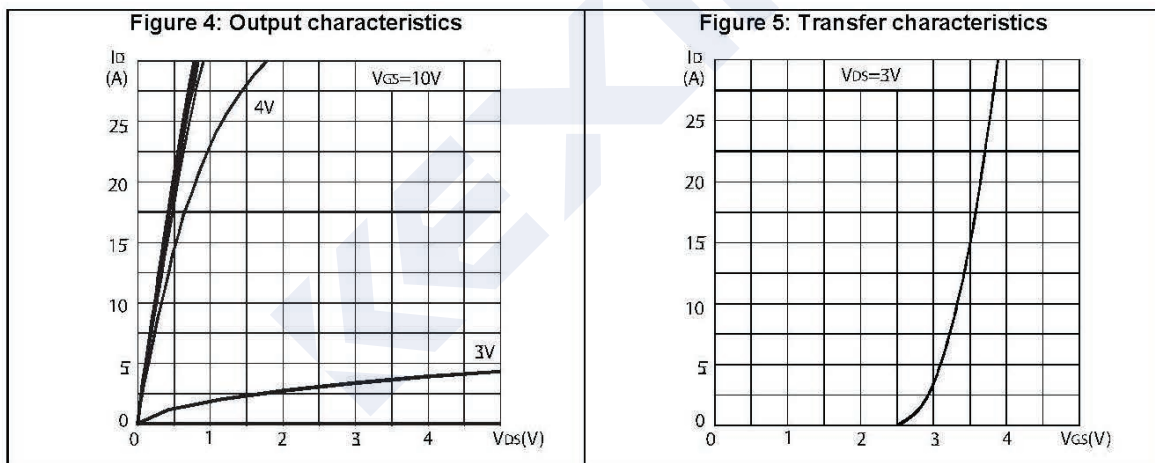
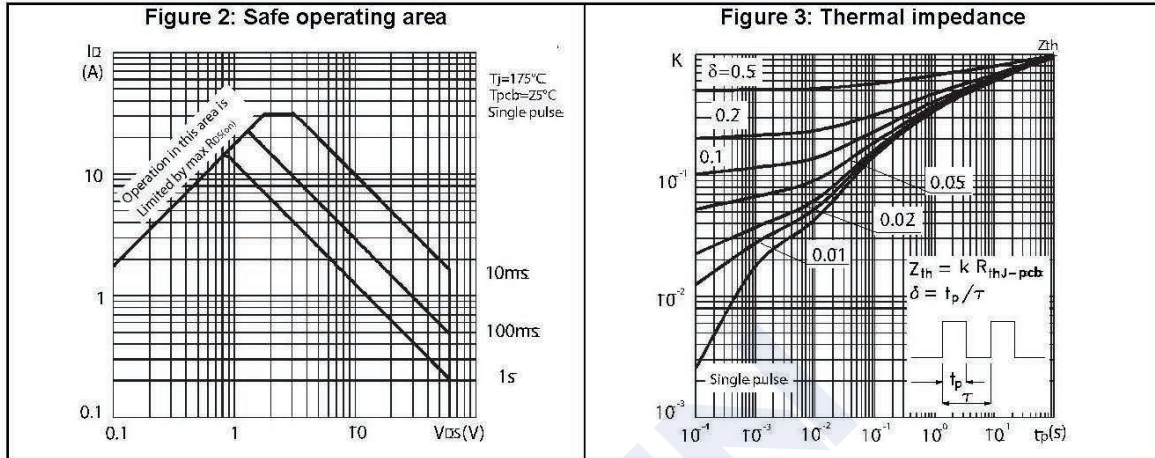
(1) Pulse width is limited by safe operating area.

(2) Pulse test: pulse duration = 300 μs , duty cycle 1.5%

Dual N-Channel MOSFET

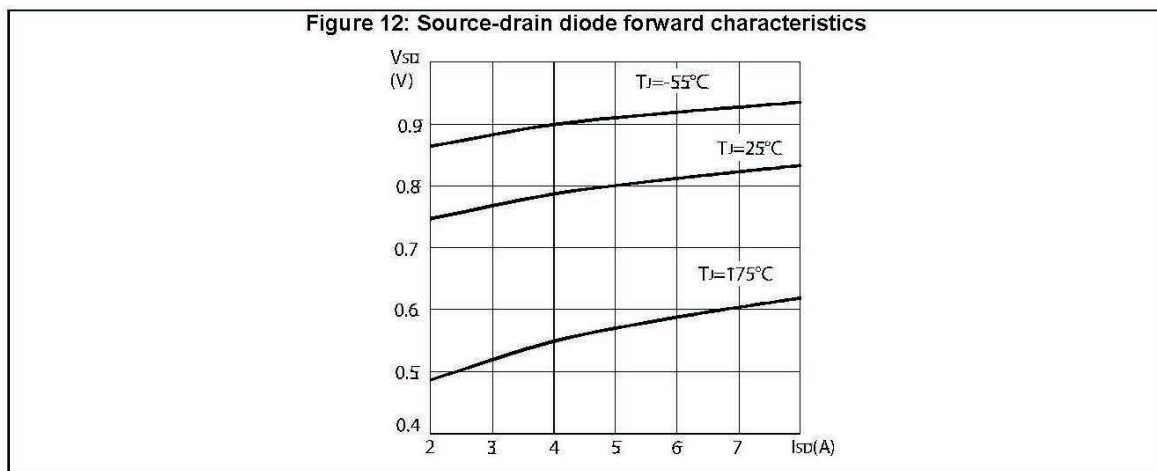
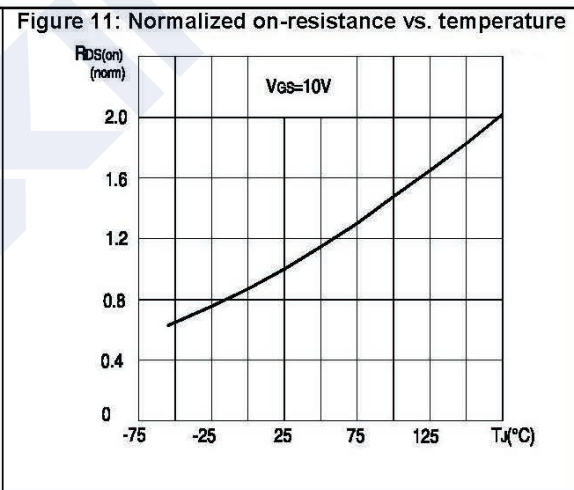
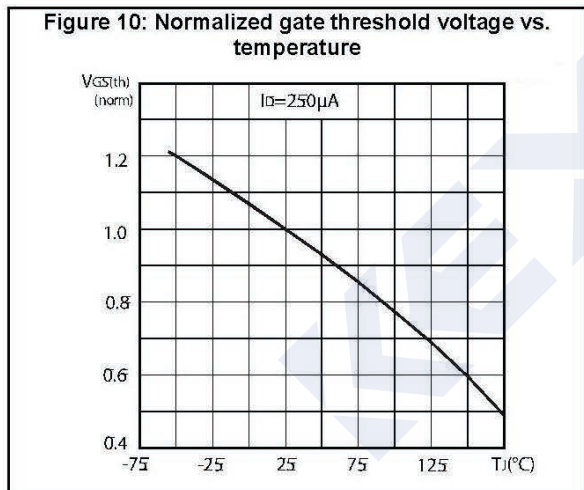
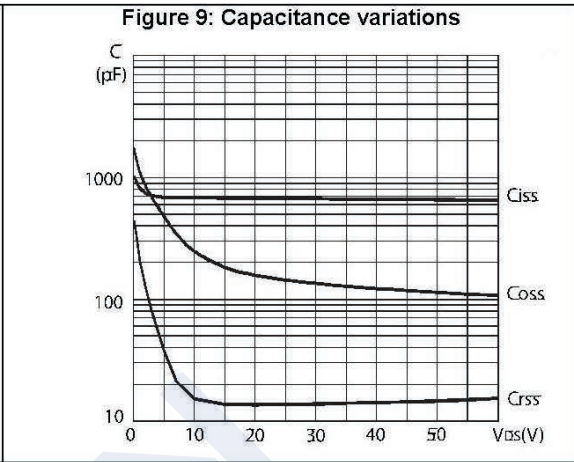
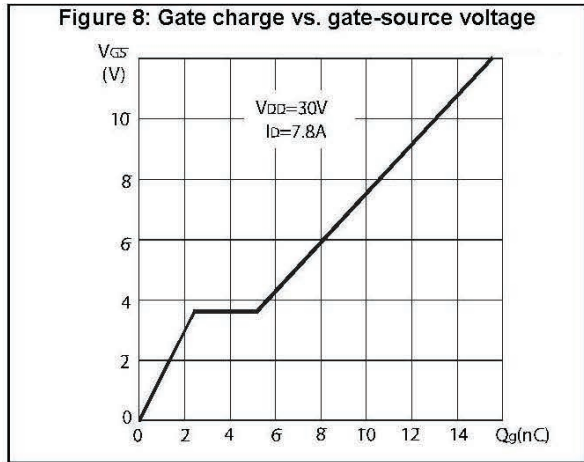
2KK6005DFN

■ Typical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise specified



Dual N-Channel MOSFET

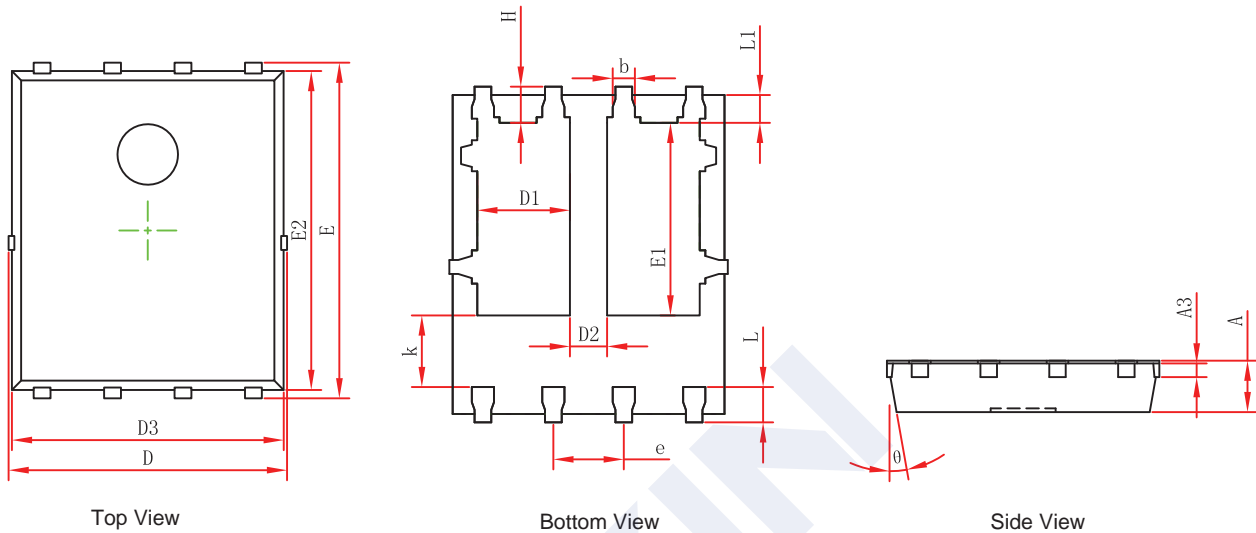
2KK6005DFN



Dual N-Channel MOSFET

2KK6005DFN

■ PDFN5x6-8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254 REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	1.470	1.870	0.058	0.074
D2	0.470	0.870	0.019	0.034
E1	3.375	3.575	0.133	0.141
D3	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°