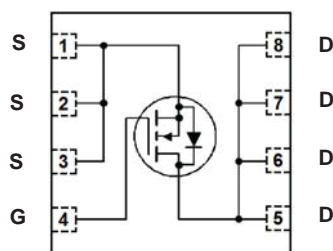


N-Channel MOSFET

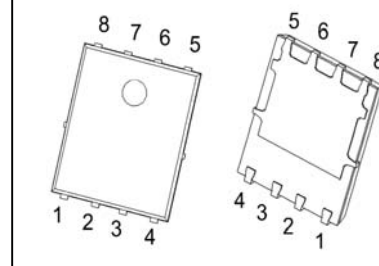
2KK6007DFN

■ Features

- $V_{DS} (V) = 100 V$
- I_D (at $V_{GS} = 10 V$) = 53 A
- $R_{DS(ON)}$ (at $V_{GS} = 10 V$) < 7.4 m Ω
- $R_{DS(ON)}$ (at $V_{GS} = 4.5 V$) < 9.1 m Ω



DFN5x6-8(PDFNWB5x6-8L)

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

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	100	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current (Note 1)	I_D	$T_C = 25^\circ C$ (Silicon Limited)	85	A
		$T_C = 25^\circ C$ (Package Limited)	53	
		$T_C = 100^\circ C$ (Silicon Limited)	54	
		$T_A = 25^\circ C$	19	
Pulsed Drain Current (Note 2)	I_{DM}	212		
Power Dissipation	P_D	$T_C = 25^\circ C$	119	W
		$T_C = 100^\circ C$	47	
		$T_A = 25^\circ C$	5.5	
Single Pulse Avalanche Energy (Note 3)	EAS	84	mJ	
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	22.7	$^\circ C/W$	
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.05		
Junction Temperature	T_J	150	$^\circ C$	
Storage Temperature Range	T_{stg}	-55 to 150		

Notes:

1. Surface mounted FR-4 board
2. Pulse width limited by T_{jmax}
3. EAS is tested at starting $T_J = 25^\circ C$, $L = 1.0mH$, $I_{AS} = 13A$, $V_{DD} = 50V$, $V_{GS} = 10V$

N-Channel MOSFET

2KK6007DFN

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = 250 \mu\text{A}$, $V_{GS} = 0\text{V}$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 100\text{V}$, $V_{GS} = 0\text{V}$			1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$			± 100	nA
Gate to Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\mu\text{A}$	1.2		2.2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 20\text{A}$		5.9	7.4	m Ω
		$V_{GS} = 4.5\text{V}$, $I_D = 15\text{A}$		7.0	9.1	
Forward Transconductance	g_{FS}	$V_{DS} = 10\text{V}$, $I_D = 20\text{A}$		92		S
Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 40\text{V}$, $f = 1\text{MHz}$		4140		pF
Output Capacitance	C_{oss}			31		
Reverse Transfer Capacitance	C_{rss}			586		
Gate Resistance	R_g	$f = 1\text{MHz}$		3.0		Ω
Total Gate Charge	$Q_g(10V)$	$V_{GS} = 10\text{V}$, $V_{DS} = 50\text{V}$, $I_D = 20\text{A}$		63		nC
Gate Source Charge	Q_{gs}			10		
Gate Drain Charge	Q_{gd}			10		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 50\text{V}$, $I_D = 20\text{A}$, $R_G = 3\Omega$		13.5		ns
Turn-On Rise Time	t_r			12		
Turn-Off Delay Time	$t_{d(off)}$			61		
Turn-Off Fall Time	t_f			8.8		
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 20\text{A}$, $di/dt = 100\text{A}/\mu\text{s}$		70		nC
Body Diode Reverse Recovery Charge	Q_{rr}			183		
Maximum Body-Diode Continuous Current	I_S	$T_C = 25^\circ\text{C}$ (Package Limited)			53	A
Diode Forward Voltage	V_{SD}	$V_{GS} = 0\text{V}$, $I_S = 1\text{A}$		0.8	1.2	V

N-Channel MOSFET

2KK6007DFN

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

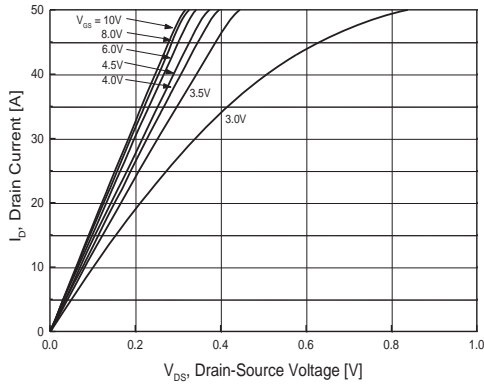


Fig.1 On-Region Characteristics

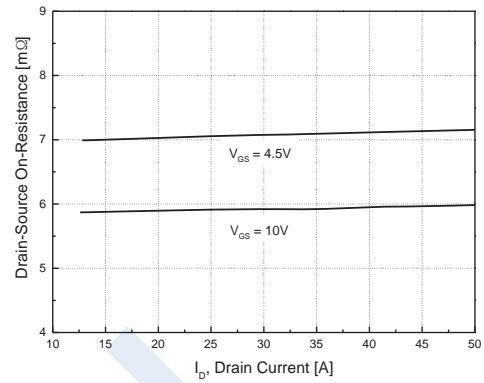


Fig.2 On-Resistance Variation with Drain Current and Gate Voltage

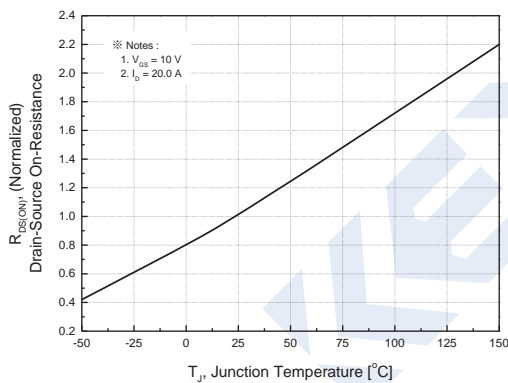


Fig.3 On-Resistance Variation with Temperature

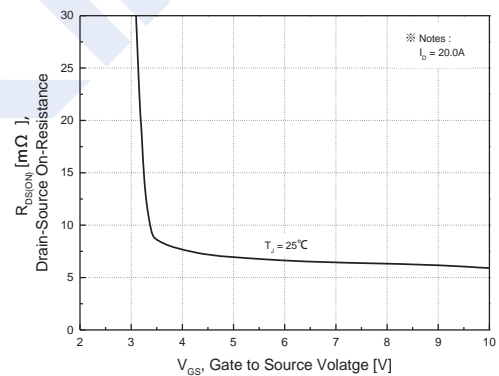


Fig.4 On-Resistance Variation with Gate to Source Voltage

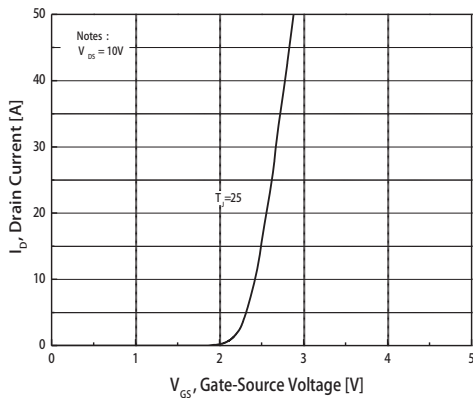


Fig.5 Transfer Characteristics

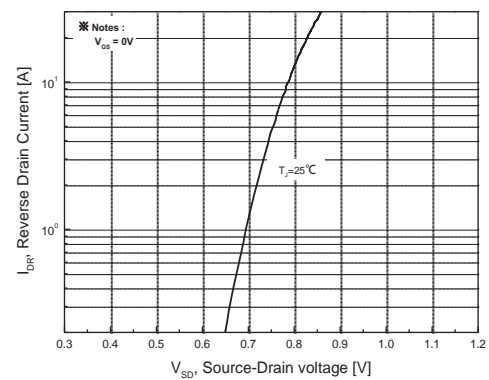


Fig.6 Body Diode Forward Voltage Variation with Source Current and Temperature

N-Channel MOSFET

2KK6007DFN

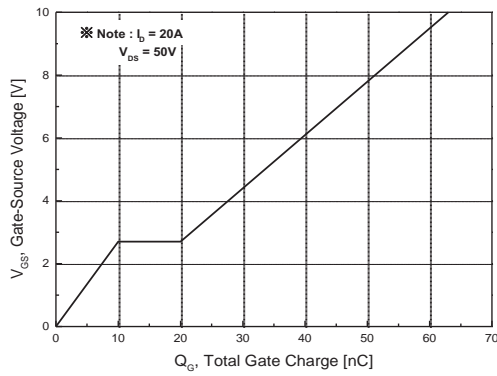


Fig.7 Gate Charge Characteristics

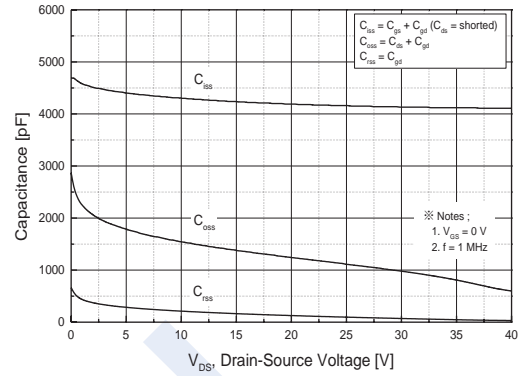


Fig.8 Capacitance Characteristics

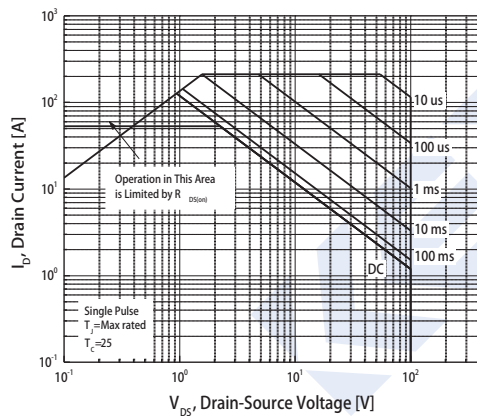


Fig.9 Maximum Safe Operating Area

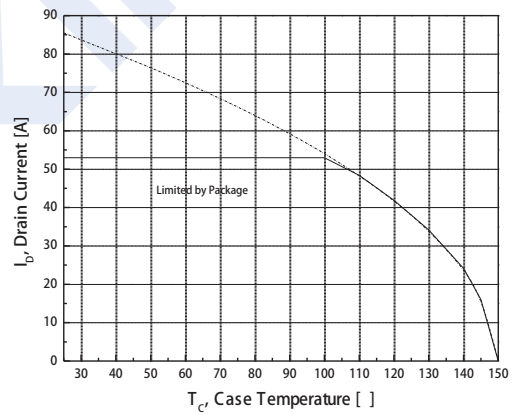


Fig.10 Maximum Drain Current vs. Case Temperature

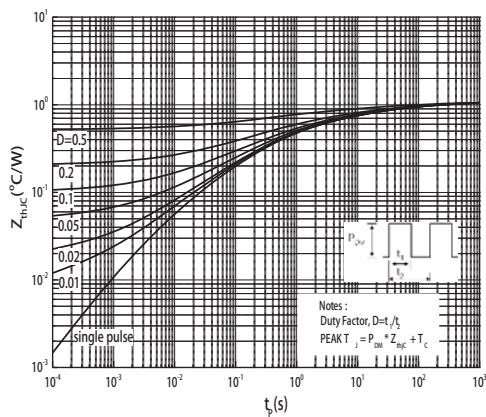
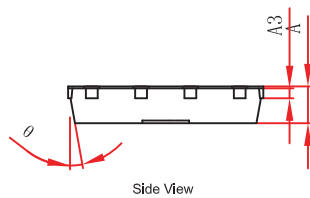
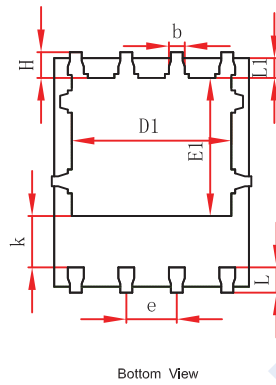
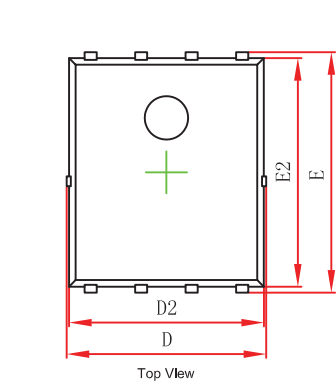


Fig.11 Transient Thermal Response Curve

N-Channel MOSFET

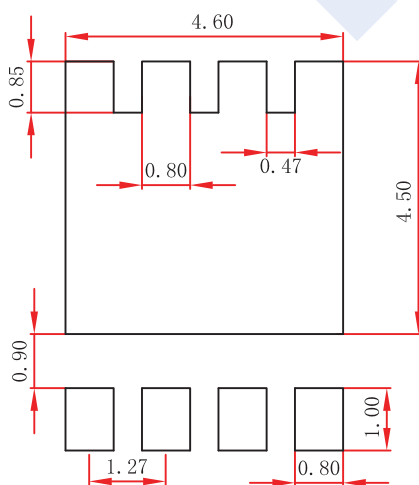
2KK6007DFN

DFN5x6-8(PDFNWB5x6-8L) Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	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°

DFN5x6-8(PDFNWB5x6-8L) Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.