

RoHS
Compliant



Features

- $V_{DS(V)} = 150V$
- $I_D = 70A$
- $R_{DS(on)} 13m\Omega$ (typ.) @ $V_{GS} = 10 V$

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	+20	
Continuous Drain Current	I_D	$T_C = 25^\circ C$	70
		$T_C = 100^\circ C$	49.5
Pulsed Drain Current	I_{DM}	280	A
Single Pulse Avalanche Energy (Note 1)	E_{AS}	583	mJ
Power Dissipation	P_D	150	W
Thermal Resistance, Junction- to-Case (Note 2)	$R_{\theta JC}$	0.83	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

Notes:

1. EAS condition : $T_J=25^\circ C, V_{DD}=50V, V_G=10V, L=0.5mH, R_g=25\Omega$

2. Surface Mounted on FR4 Board, $t \leq 10$ sec. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$. the maximum allowed junction temperature of $150^\circ C$. The value in any given application depends on the user's specific board design.

Electrical Characteristics ($T_A = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu A, V_{GS}=0V$	150			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-150V, V_{GS}=0V$			1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
On Characteristics (Note 3)						
Gate to Source Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=35A$		13	15	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=-35A$		58		S
Dynamic Characteristics (Note 4)						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=-75V, f=1MHz$		2200		pF
Output Capacitance	C_{oss}			289		
Reverse Transfer Capacitance	C_{rss}			11.2		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Switching Characteristics (Note 4)						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DD}=75V, I_D=-12A$		33		nC
Gate Source Charge	Q_{gs}			14.5		
Gate Drain Charge	Q_{gd}			8		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 75V, I_D = 35A, R_G = 3\Omega$		12.5		nS
Turn-On Rise Time	t_r			3.8		
Turn-Off Delay Time	$t_{d(off)}$			14		
Turn-Off Fall Time	t_f			3.5		
Drain-Source Diode Characteristics						
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 35A, dI/dt = 100 A/\mu s, T_J = 25^\circ C$		47		nS
Body Diode Reverse Recovery Charge	Q_{rr}			55		nC
Maximum Body-Diode Continuous Current	I_S				70	A
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS} = 0 V, I_S = 35 A$			1.2	V

Notes:

3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production.

Typical Electrical and Thermal Characteristics

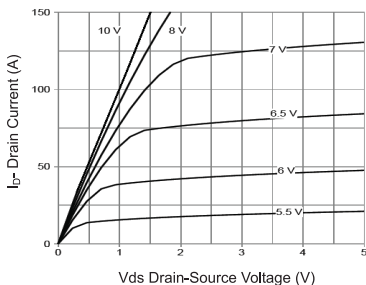


Figure 1 Output Characteristics

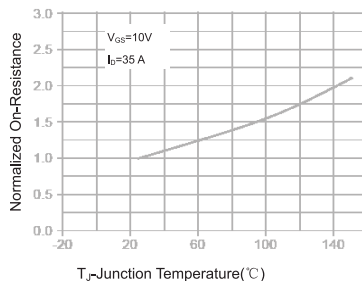


Figure 4 Rdson-Junction Temperature

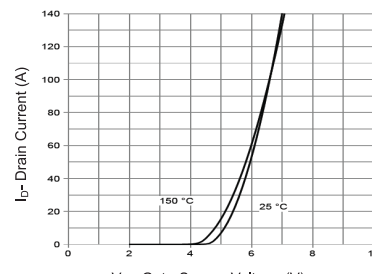


Figure 2 Transfer Characteristics

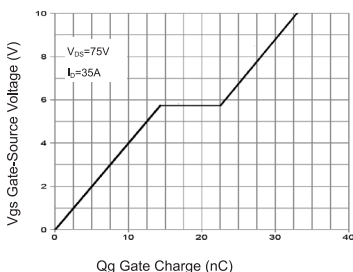


Figure 5 Gate Charge

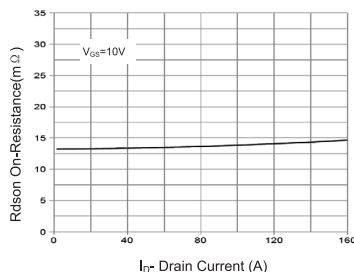


Figure 3 Rdson- Drain Current

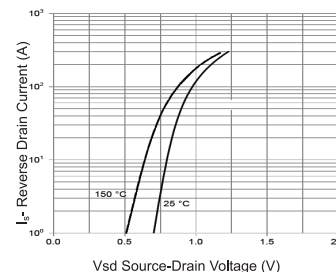


Figure 6 Source- Drain Diode Forward

Typical Characteristics

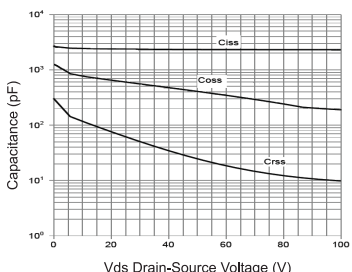


Figure 7 Capacitance vs Vds

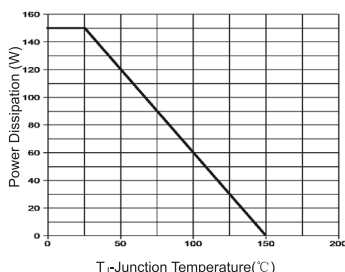


Figure 9 Power De-rating

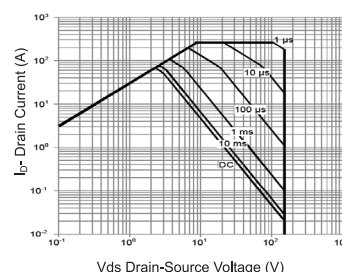


Figure 8 Safe Operation Area

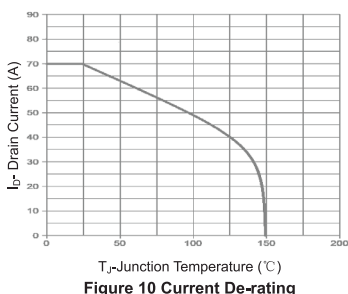


Figure 10 Current De-rating

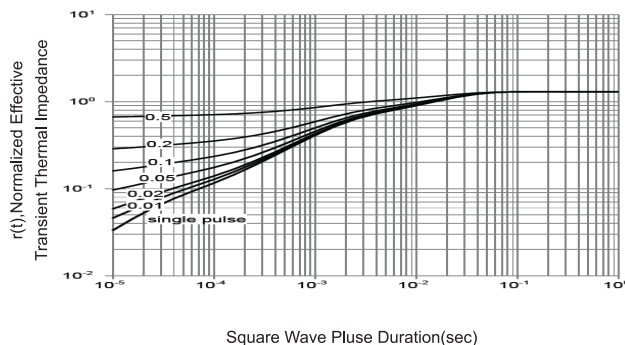
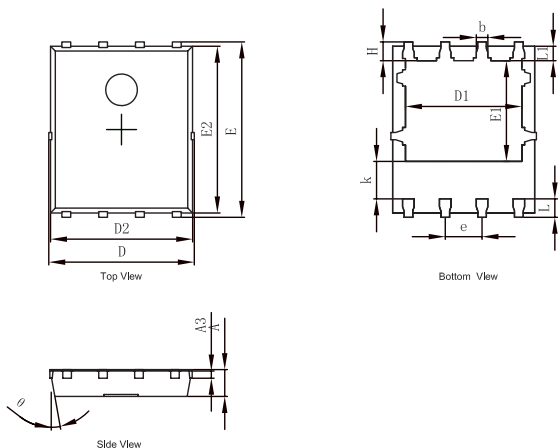


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions

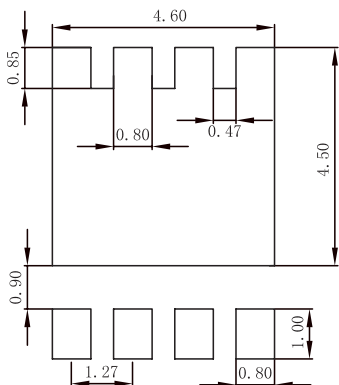


Dimensions : Millimetres

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°

Newark.com/multicomp-pro
 Farnell.com/multicomp-pro
 sg.element14.com/b/multicomp-pro

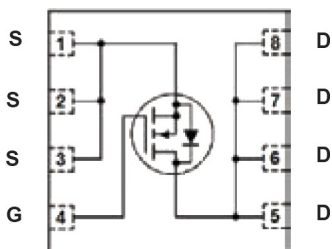
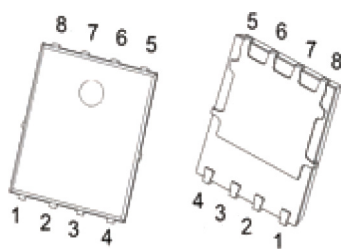
Suggested Pad Layout



Notes

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

Diagram



Dimensions : Millimetres

Part Number Table

Description	Part Number
N Channel MOSFET, 70A, 150V	2KK6015DFN

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