

RoHS
Compliant



Features

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

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	70	A
		49.5	
Pulsed Drain Current	I_{DM}	280	
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 DelayTime	t _{d(on)}	V _{GS} = 10V, V _{DD} = 75V, I _D = 35A, R _G = 3Ω		12.5		nS
Turn-On Rise Time	t _r			3.8		
Turn-Off DelayTime	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/μs, T _J = 25°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

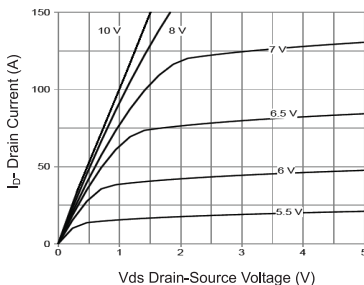


Figure 1 Output Characteristics

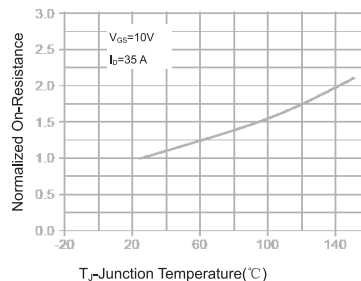


Figure 4 Rdson-Junction Temperature

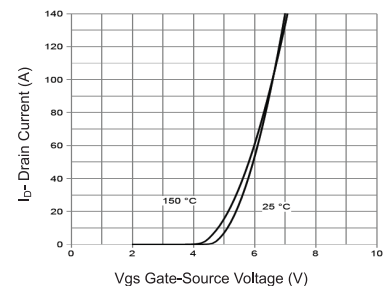


Figure 2 Transfer Characteristics

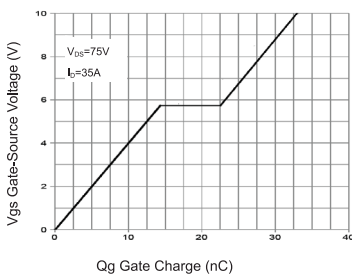


Figure 5 Gate Charge

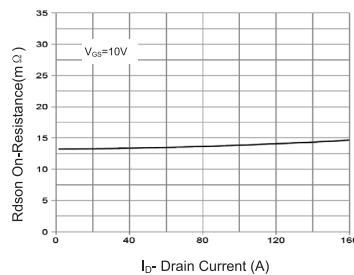


Figure 3 Rdson- Drain Current

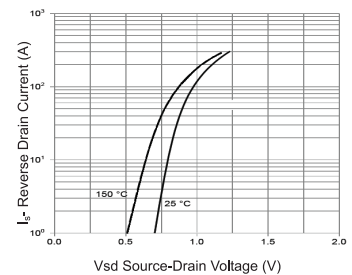


Figure 6 Source- Drain Diode Forward

Typical Characteristics

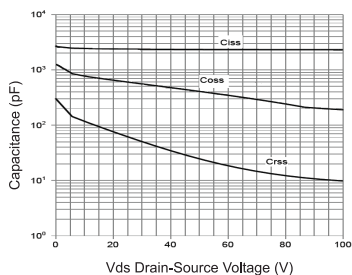


Figure 7 Capacitance vs Vds

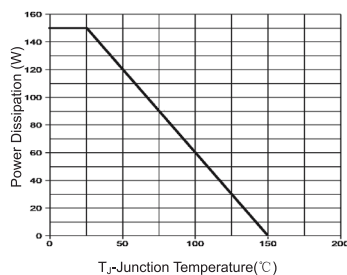


Figure 9 Power De-rating

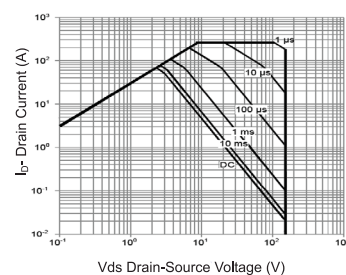


Figure 8 Safe Operation Area

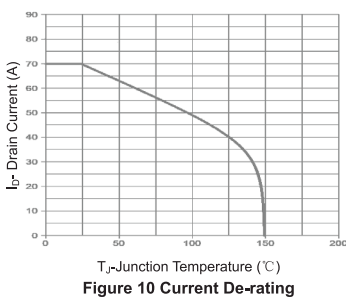


Figure 10 Current De-rating

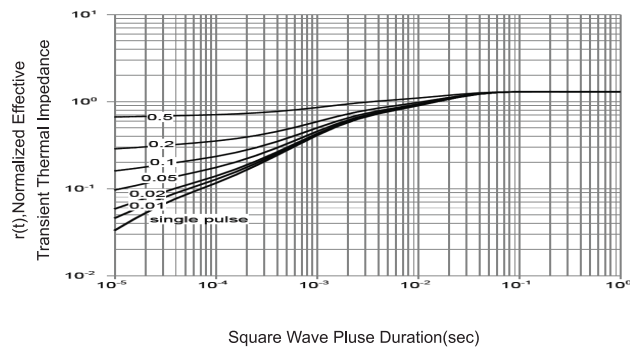
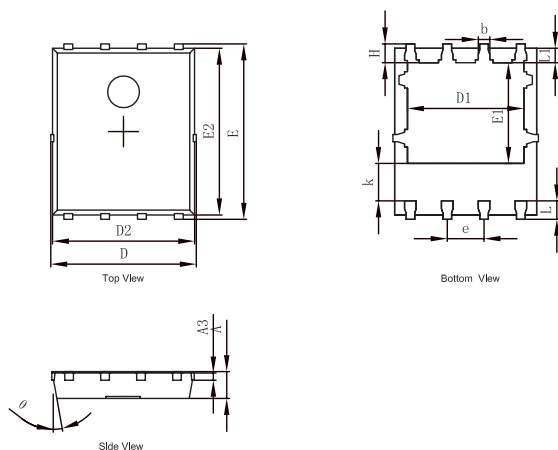


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions



Dimensions : Millimetres

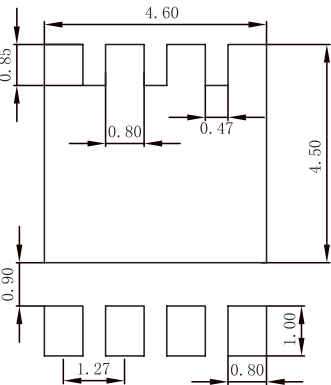
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	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°

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sg.element14.com/b/multicomp-pro

N Channel MOSFET

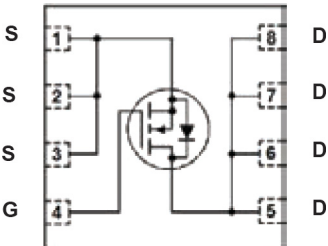
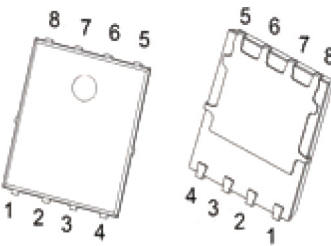
multicomp^{PRO}

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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