Features

- Lead free product is acquired
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- ESD Protected: 2KV
- Advanced high cell density Trench technology

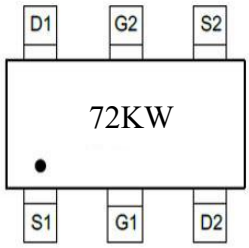
Bvdss	Rdson	ID
60V	1.6Ω	200mA

Application

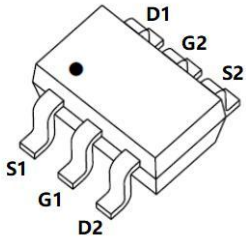
RoHS

- Battery Operated Systems
- Direct logic-level Interface:TTL/COMS
- Solid-State Relays

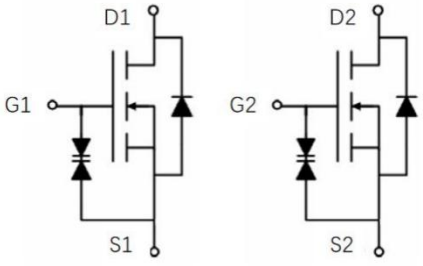
Package



Marking and pin assignment



SOT363-6L Top view



Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
72KW	HL7002KW	SOT363-6L	3000

Absolute Maximum Ratings (T_A=25℃unless otherwise specified noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current,V_{GS}@10V	I_D@T_A=25℃	0.2	A
	I_D@T_A=100℃	0.13	A
Pulsed Drain Current[1]	I_{DM}	0.8	A
Maximum Power Dissipation	P_D	0.38	W
Junction Temperature Range	T_J	-55 ~ 150	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient	$R_{\theta JA}$	328	℃/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	--	℃/W

Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL7002KW	SOT23-6L	2,5	3,6	1,4	Tape Reel

Electrical Characteristics (T_J=25℃unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	B_{VDSS}	V_{GS}=0V,I_D=10uA	60	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	-	-	1	uA
Gate-body leakage current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±10	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250uA	1	-	2.5	V
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	V_{GS}=10V,I_D=0.3A	-	1.6	2.1	Ω
		V_{GS}=4.5V,I_D=0.2A	-	1.9	2.7	
Forward Transconductance	gfs	-	-	-	-	S
Gate Resistance	R_g	V_{DS}=0V,V_{GS}-0V,f=1MHz	-	-	-	Ω
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V, f=1MHz	-	28	-	pF
Output Capacitance	C_{oss}		-	11	-	
Reverse Transfer Capacitance	C_{rss}		-	4	-	
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V, I_D=0.3A	-	1.7	-	nC
Gate-Source Charge	Q_{gs}		-	0.3	-	
Gate-Drain Charge	Q_{gd}		-	0.6	-	
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=10V,V_{GS}=10V, R_G=10Ω,I_D=0.2A	-	2	-	ns
Rise Time	T_r		-	15	-	
Turn-Off Delay Time	$T_{d(off)}$		-	7	-	
Fall Time	T_f		-	20	-	
Continuous Source Current[1]	I_S	V_G=V_D=0V,Force Current	-	-	0.2	A
Drain to Source Diode Forward Current	I_{SM}		-	-	0.8	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=0.2A	-	-	1.2	V

Note :

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

Figure1: Output Characteristics

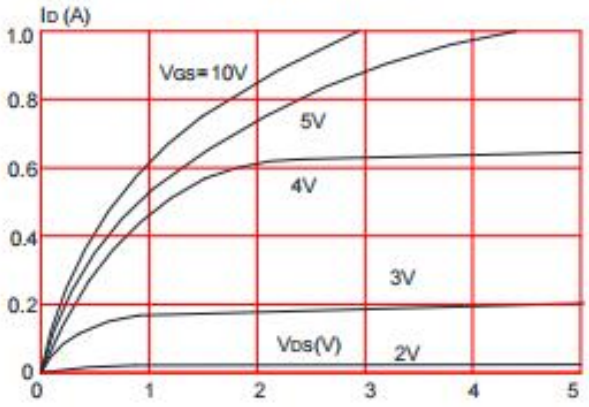


Figure 2: Typical Transfer Characteristics

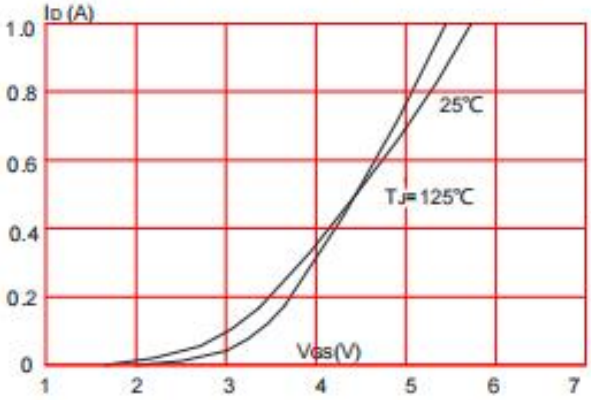


Figure 3: On-resistance vs. Drain Current

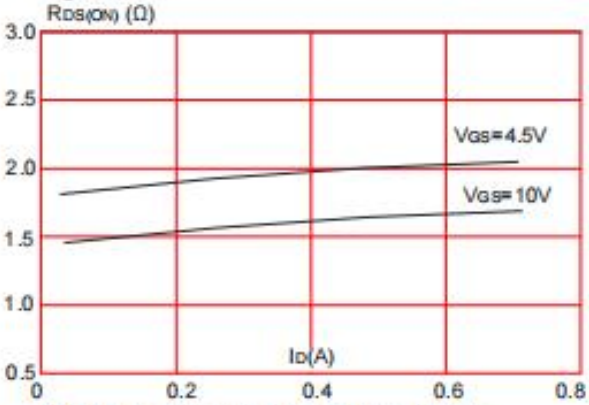


Figure 4: Body Diode Characteristics

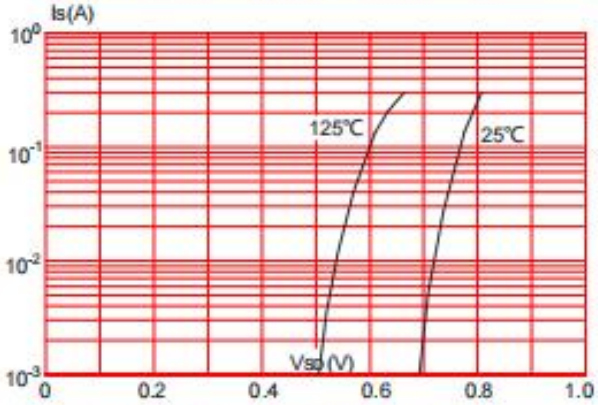


Figure 5: Gate Charge Characteristics

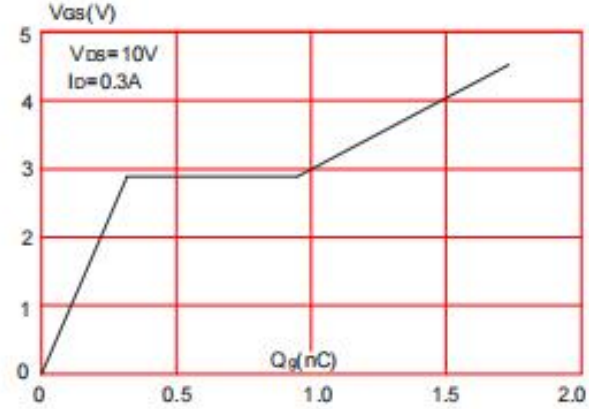


Figure 6: Capacitance Characteristics

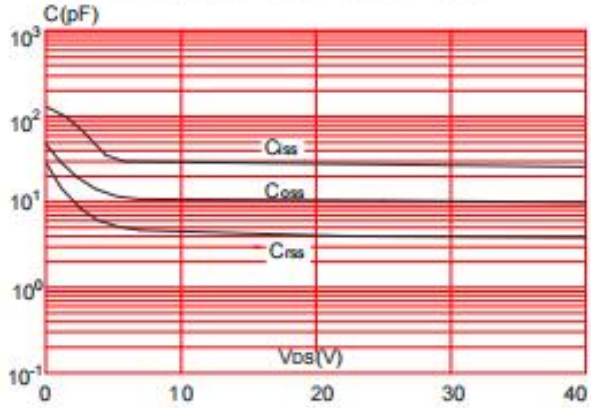


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

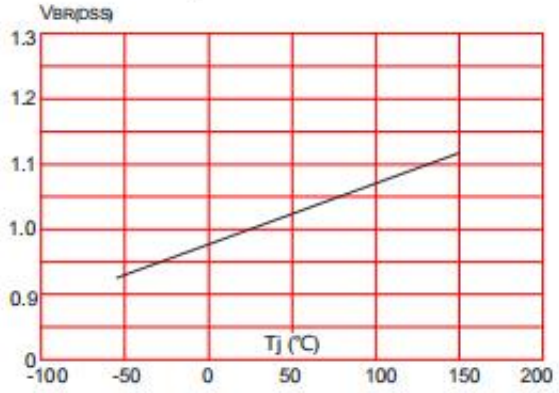


Figure 8: Normalized on Resistance vs. Junction Temperature

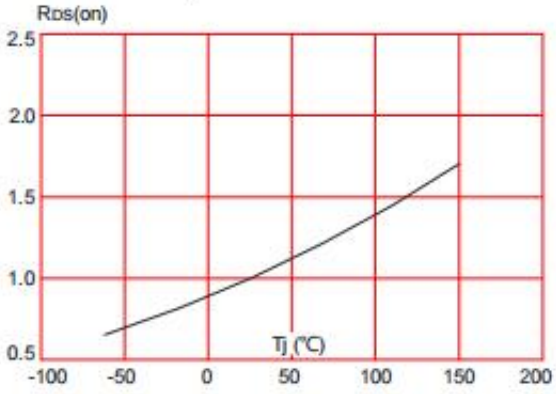


Figure 9: Maximum Safe Operating Area

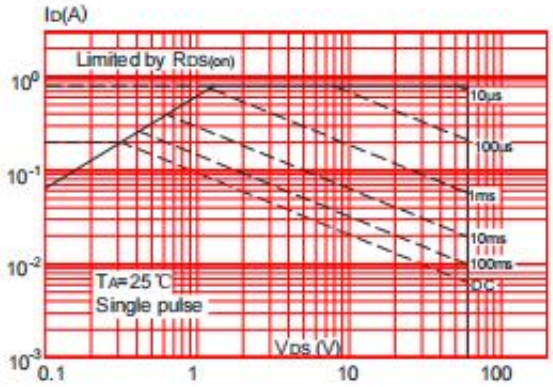


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

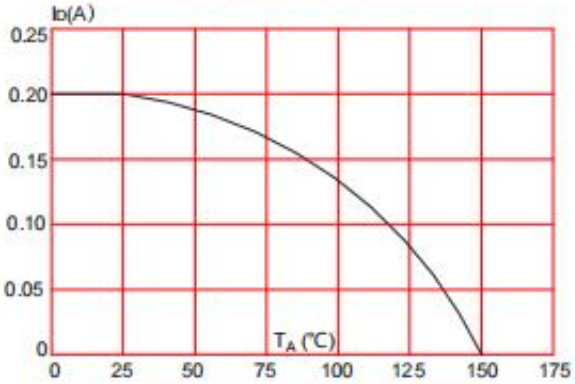
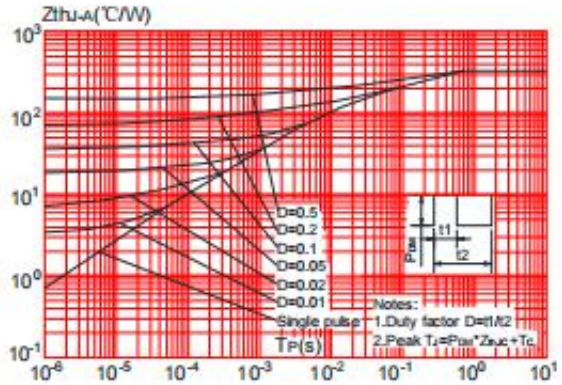


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



Test Circuit

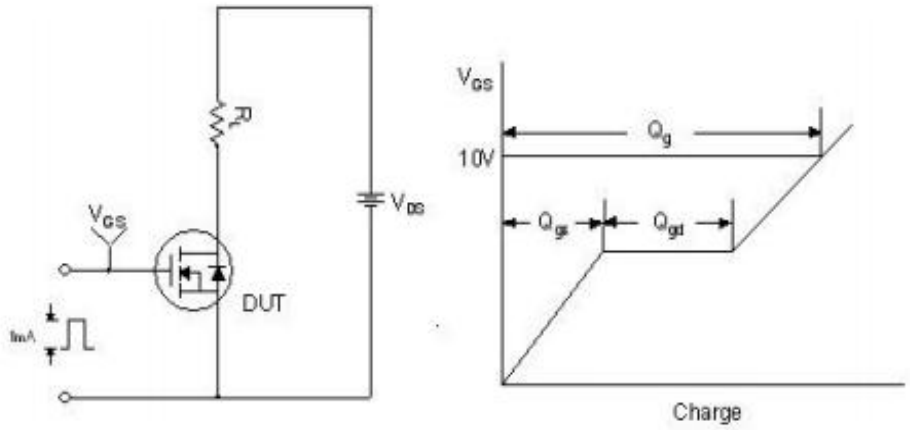


Figure 1. Gate Charge Test Circuit & Waveform

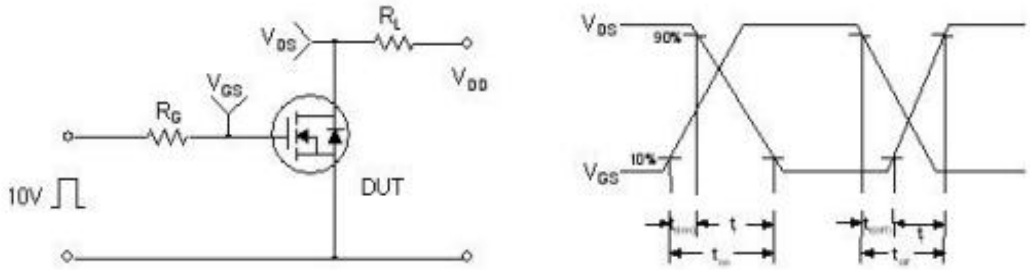


Figure 2. Resistive Switching Test Circuit & Waveforms

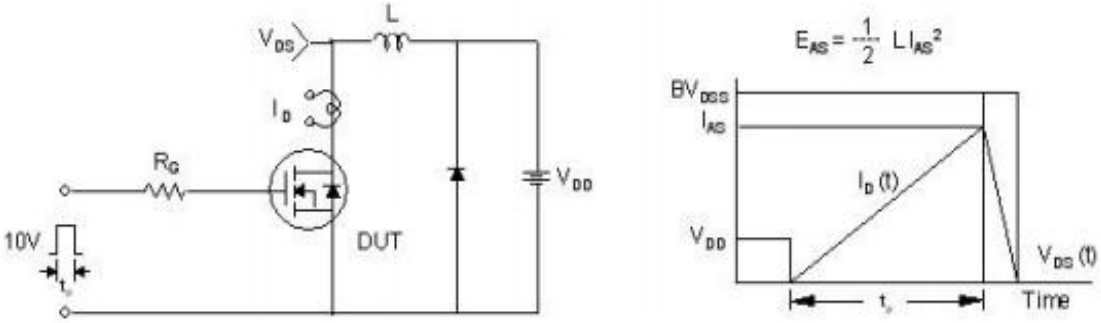
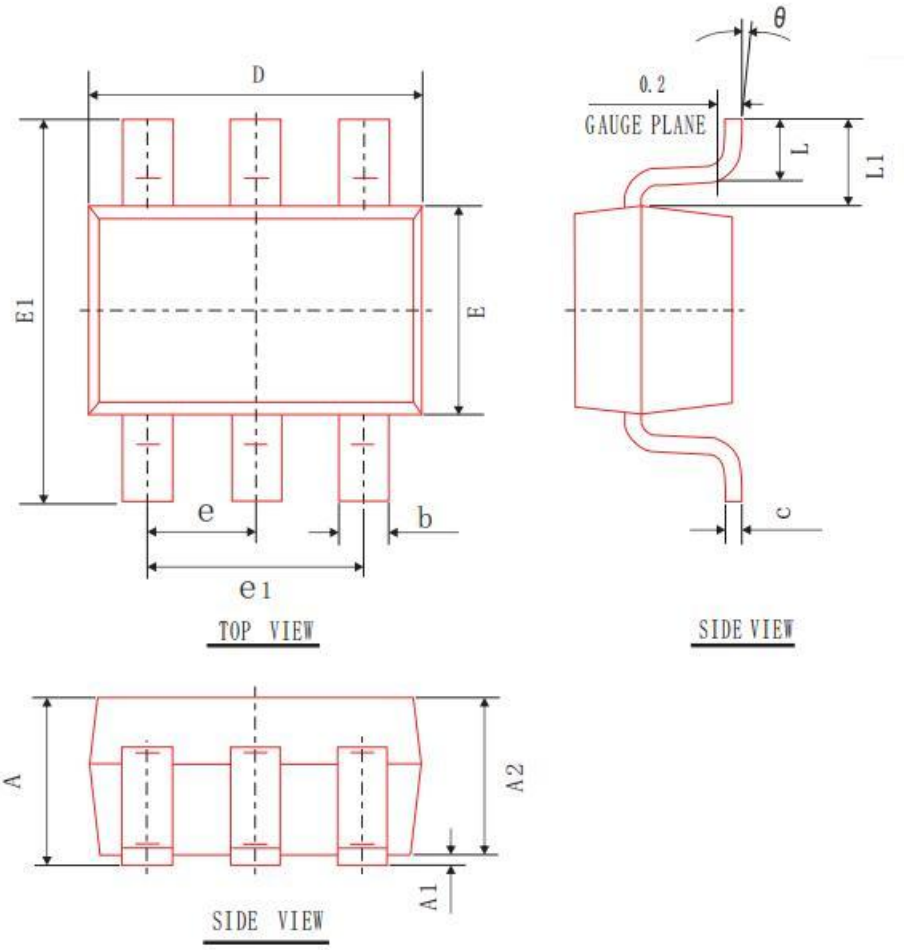


Figure 3. Unclamped Inductive Switching Test Circuit & Waveforms

Package Mechanical Data SOT363-6L



SYMBOL	MIN	NOM	MAX
A	0.90	1.00	1.10
A1	0.00	0.05	0.10
A2	0.90	0.95	1.00
b	0.20	0.25	0.30
c	0.08	0.10	0.15
e1	1.20	1.30	1.40
D	2.00	2.10	2.20
E	1.15	1.25	1.35
E1	2.15	2.30	2.45
L	0.26	0.36	0.46
θ	0°	4°	8°
L1	0.525 REF		
e	0.65 TYP		

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Chip revision change

Date	Revision	Remarks
2026-10-26	V2.1	修正 RDS 数据