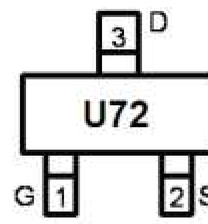
Description

It utilizes the latest processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications.

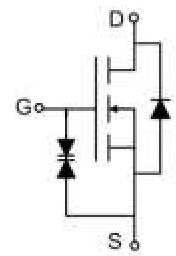
Features

- Advanced MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- ESD Rating：2000V HBM
- 150℃ operating temperature

SOT-23



Marking and pin Assignment



Schematic diagram

Main Product Characteristics

V_{DSS}	60V
$R_{DS}(on)$	3Ω(max.)
I_D	0.3A

Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
I_D @ TC = 25℃	Continuous Drain Current, V_{GS} @ 10V①	0.3	A
I_{DM}	Pulsed Drain Current②	1.2	A
P_D @TC = 25℃	Power Dissipation③	0.63	W
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-to-Source Voltage	±20	V
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	℃

Thermal Characteristics

Symbol	Symbol	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-ambient（ t≦10 S）④		200	℃/W

Electrical Characteristics (T_A=25℃ unless otherwise noted)

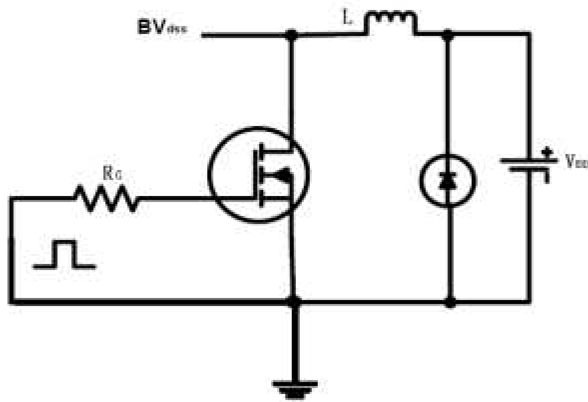
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-to-Source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	60			V
Static Drain-to-Source on-resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=0.5A		1.6	3	Ω
		V_{GS}=5V, I_D=0.05A			3.5	
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = VGS, I_D = 250μA	1		2.5	V
Drain-to-Source leakage current	I_{DSS}	V_{DS} = 60V, V_{GS} = 0V			1	uA
Gate-to-Source forward leakage	I_{GSS}	V_{GS}=±5V, V_{DS}=0V			±100	nA
		V_{GS}=±20V, V_{DS}=0V			±10	uA
Turn-on delay time	td(on)	V_{GS}=10V, V_{DS}=30V,			25	ns
Turn-Off delay time	td(off)	I_D=0.2A, R_{GEN}=10Ω			45	
Input capacitance	Ciss	V_{GS} = 0V		40		pF
Output capacitance	Coss	V_{DS} = 25V		16.6		
Reverse transfer capacitance	Crss	f = 1MHz		9.5		

Source-Drain Ratings and Characteristics

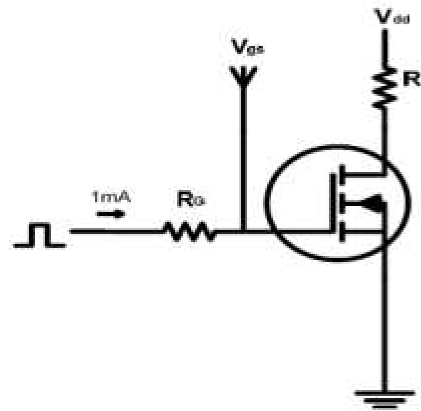
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the			0.3	A
Pulsed Source Current (Body Diode)	I_{SM}	integral reverse p-n junction diode			1.2	A
Diode Forward Voltage	V_{SD}	I_S=0.2A, V_{GS}=0V			1.3	V

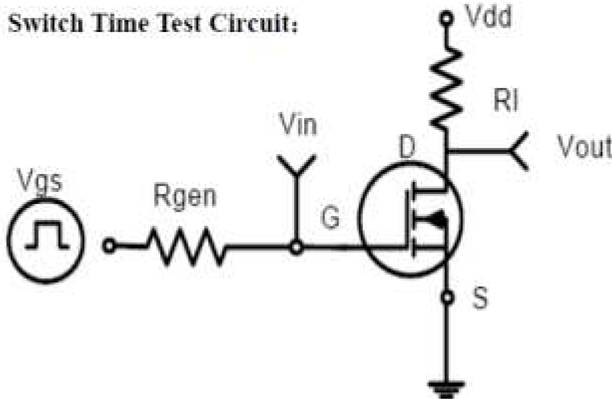
Test circuits and Waveforms

EAS test circuits:

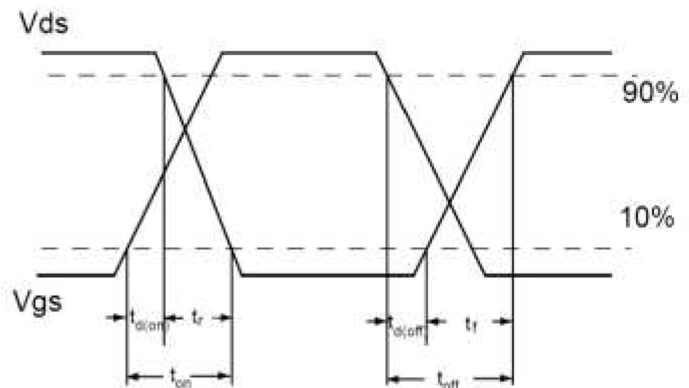


Gate charge test circuit:





Switch Waveforms:



Notes:

①The maximum current rating is limited by bond-wires.

②Repetitive rating; pulse width limited by max. junction temperature.

③The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.

④The value of $R_{\theta JA}$ is measured with the device mounted on 1in 2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C

⑤These curves are based on the junction-to-case thermal impedence which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of $T_{J(MAX)}$=150°C.

Typical electrical and thermal characteristics

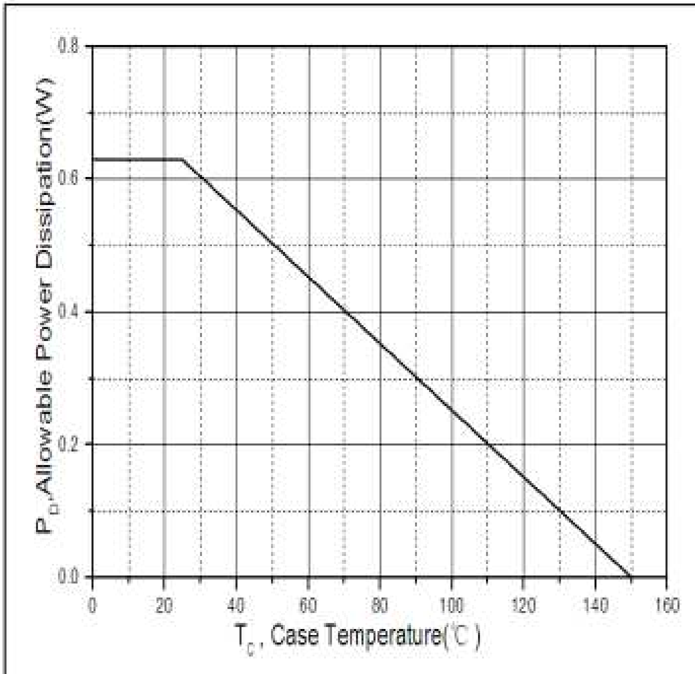


Figure 1. Power Dissipation Vs. Case Temperature

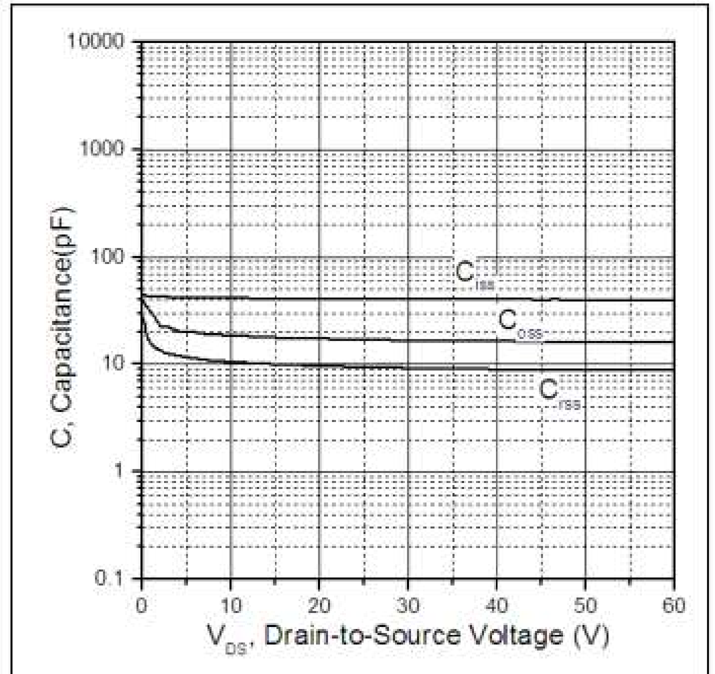


Figure 2.Typical Capacitance Vs. Drain-to-Source Voltage

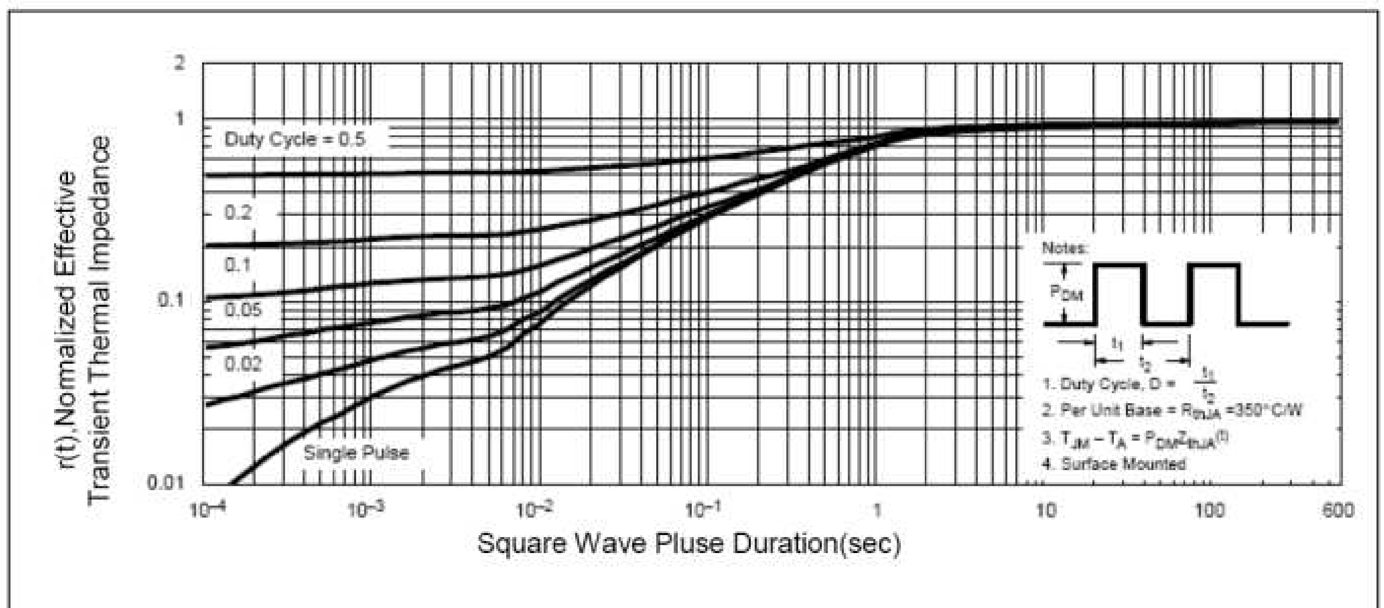


Figure3. Maximum Effective Transient Thermal Impedance, Junction-to-Case

Ordering and Marking Information

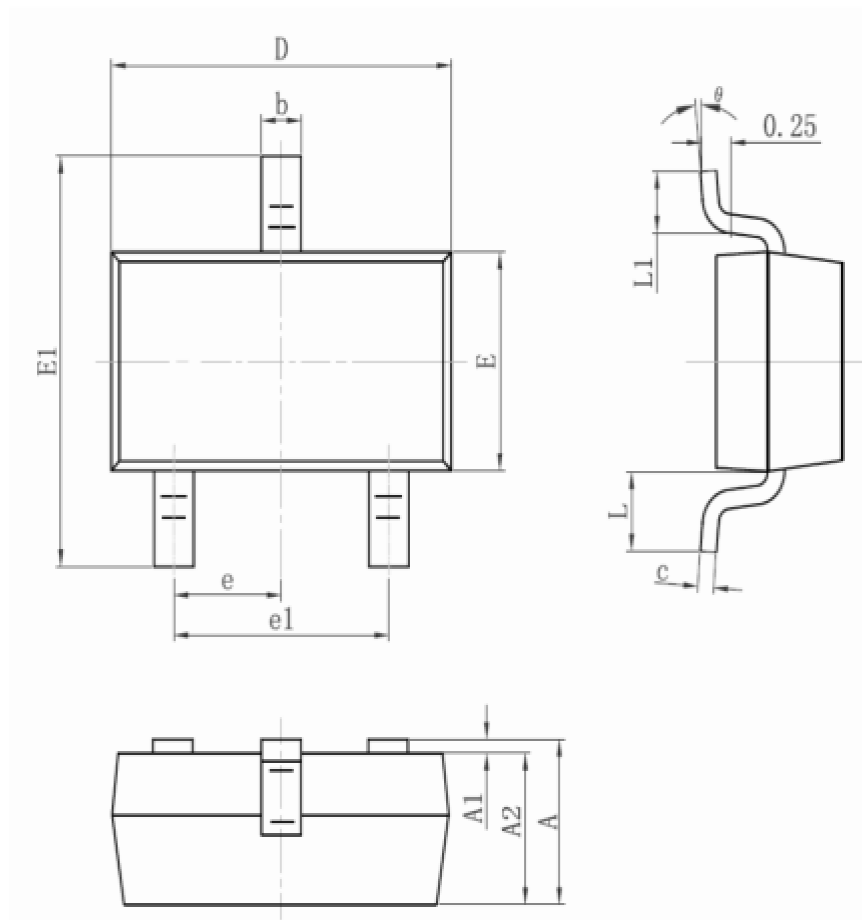
EC732N7002KU XX X

R：Tape & Reel

B1:SOT23-3L

Part Number	Package	Marking
EC732N7002KUB1R	SOT23-3L	U72

SOT23 Package Outline Dimension



Symbol	Dimension In Millimeters		Dimension In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.55REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0^0	8^0	0^0	8^0