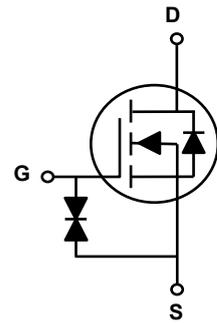


Main Product Characteristics

V_{DS}	60V
$R_{DS(ON)}$	2.5Ω
I_D	340mA



SOT-323



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The GS2N7002KW utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous($T_A=25^{\circ}\text{C}$)	I_D	340	mA
Drain Current-Continuous($T_A=70^{\circ}\text{C}$)		272	
Drain Current-Pulsed ¹	I_{DM}	1.5	A
Power Dissipation($T_A=25^{\circ}\text{C}$)	P_D	350	mW
Thermal Resistance, Junction-to-Ambient ²	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$
Storage Temperature Range	T_{STG}	-55 To +150	$^{\circ}\text{C}$
Operating Junction Temperature Range	T_J	-55 To +150	$^{\circ}\text{C}$

Electrical Characteristics (T_J=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS1}	V _{GS} =±20V, V _{DS} =0V	-	-	±9	μA
	I _{GSS2}	V _{GS} =±10V, V _{DS} =0V	-	-	±200	nA
	I _{GSS3}	V _{GS} =±5V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.4	2.5	V
Static Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =300mA	-	1.3	2.5	Ω
		V _{GS} =4.5V, I _D =200mA	-	1.4	3	
Diode Forward Voltage	V _{SD}	I _S =300mA, V _{GS} =0V	-	-	1.2	V
Maximum Body-Diode Continuous Current	I _S	-	-	-	340	mA
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, F=1.0MHz	-	18	-	PF
Output Capacitance	C _{oss}		-	12	-	PF
Reverse Transfer Capacitance	C _{rss}		-	7	-	PF
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =30V, I _D =0.3A, V _{GS} =10V	-	1.7	2.4	nC
Turn-On Delay Time	t _{d(on)}	V _{DD} =30V, I _D =300mA, V _{GS} =10V, R _{GEN} =6Ω	-	5	-	nS
Turn-Off Delay Time	t _{d(off)}		-	17	-	
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _S =300mA, V _R =25V, di _S /dt=-100A/μs	-	30	-	nS

Note:

1. Pulse Test: Pulse Width ≤ 300μs, Duty cycle ≤ 2%.
2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Electrical and Thermal Characteristic Curves

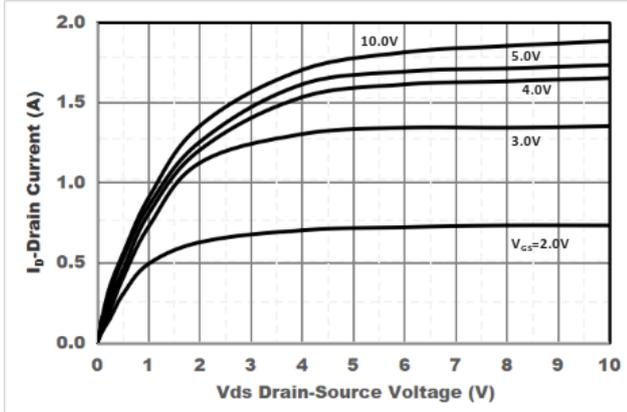


Figure 1. Output Characteristics

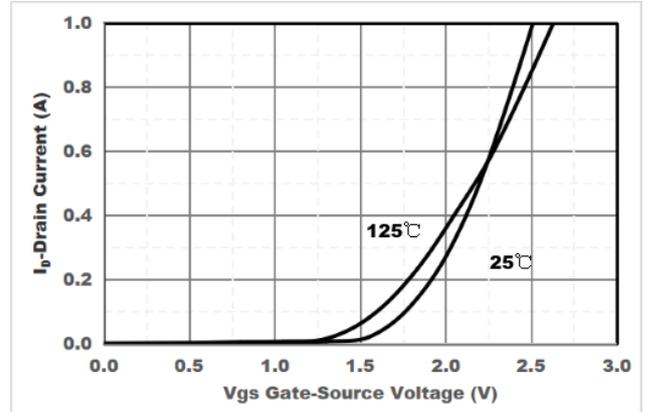


Figure 2. Transfer Characteristics

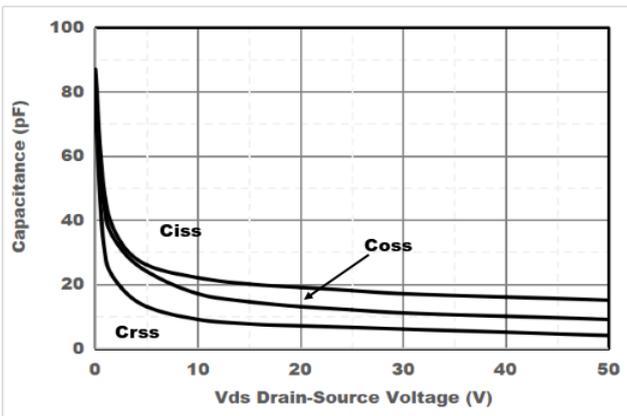


Figure 3. Capacitance Characteristics

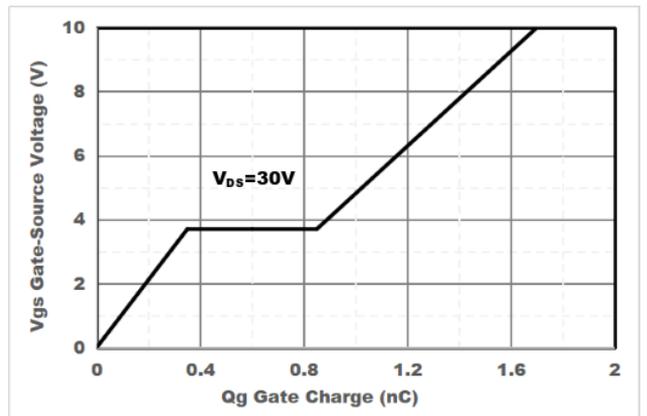


Figure 4. Gate Charge

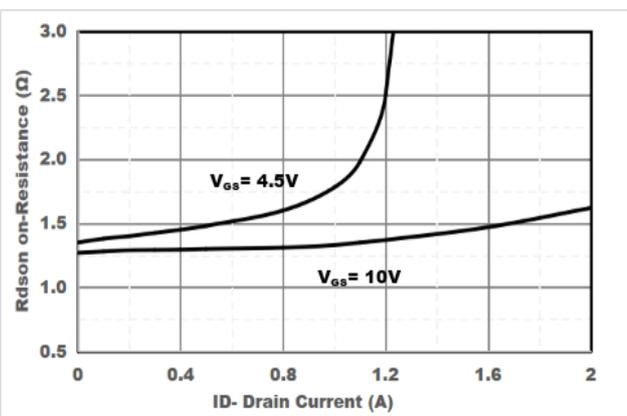


Figure 5. Drain-Source on Resistance

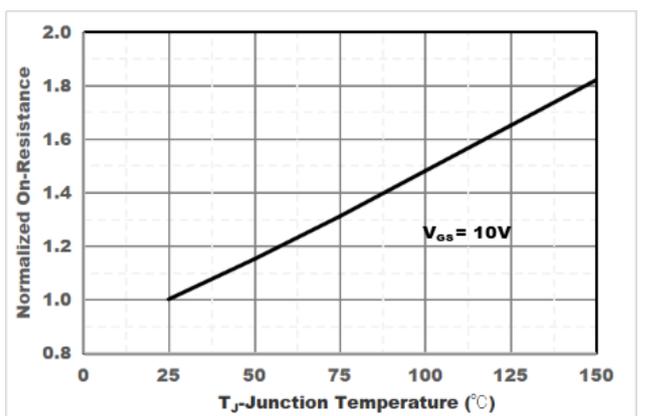


Figure 6. Drain-Source on Resistance

Typical Electrical and Thermal Characteristic Curves

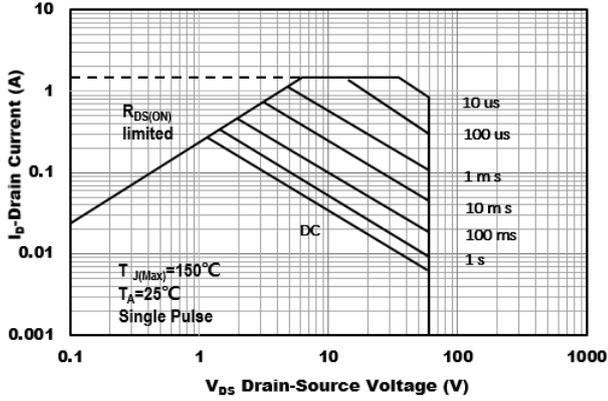


Figure 7. Safe Operation Area

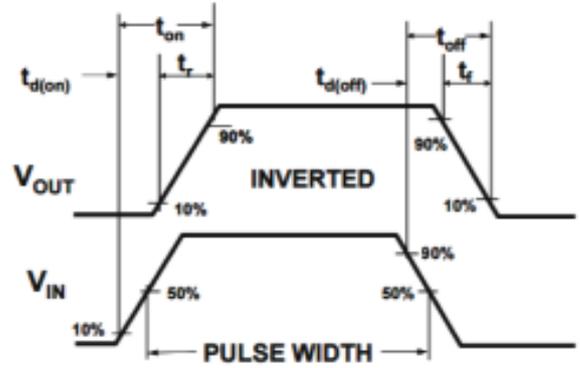
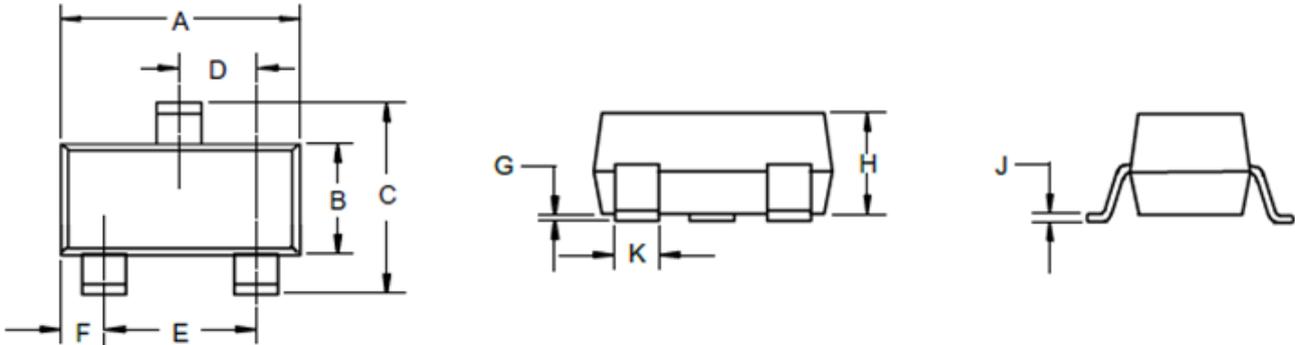


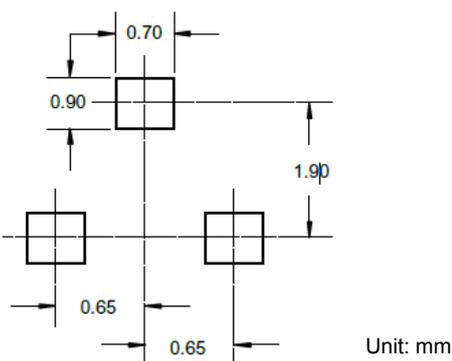
Figure 8. Switching Wave

Package Outline Dimensions (SOT-323)



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.083	.096	2.10	2.45	
D	.026 Nominal		0.65Nominal		
E	.047	.055	1.20	1.40	
F	.012	.016	.30	.40	
G	.000	.004	.000	.100	
H	.035	.039	.90	1.00	
J	.004	.010	.100	.250	
K	.006	.016	.15	.40	

Recommended Pad Layout



Order Information

Device	Package	Marking	Quantity	HSF Status
GS2N7002KW	SOT-323	*2 (* varied by lot)	3,000 pcs / Reel	RoHS Compliant