N-Channel MOSFET

Features

- Trench Power MV MOSFET Technology
- Voltage Controlled Small Signal Switch
- Low Input Capacitance
- ESD Protected up to 2.5KV (HBM)

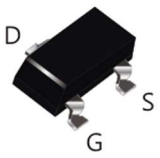
Product Summary		
V_{DS}	$R_{DS(on)}$ (Ω) Max	I_D (mA)
60V	5.3@ 4.5V 0.2A	340
	5.0@ 10V 0.5A	

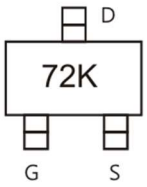
Application

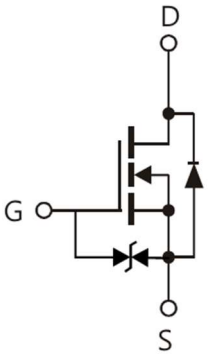
- Load Switch for Portable Devices
- Battery operated systems
- Solid-state relays
- Direct logic-level interface: TTL/CMOS

Marking information

SOT-323







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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage (T_A=25 °C)	V_{GS}	±20	V
Continuous drain current (T_A=25 °C)	I_D	0.34	A
Continuous drain current (T_A=70 °C)	I_D	0.272	A
Peak Drain Current, Pulsed [1]	I_{DM}	0.8	A
Power Dissipation	P_D	0.2	W
Operating Junction	T_J	-55~150	℃
Storage Temperature Range	T_{stg}	-55~150	℃

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient [2]	$R_{\theta JA}$	625	℃/W

Characteristics at T_J = 25°C unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
STATIC PARAMETERS					
Drain-Source Breakdown Voltage at V_{GS}=0V, I_D=250μA	BV_{DSS}	60			V
Drain-Source Leakage Current at V_{DS}=48V, V_{GS}=0V	I_{DSS}			1	μA
Gate Leakage Current at V_{GS}=±20V, V_{DS}=0V	I_{GSS}			±10	μA
Gate-Source Threshold Voltage at V_{DS}=V_{GS}, I_D=1mA	$V_{GS(th)}$	1	1.3	2.5	V
Drain-Source On-State Resistance at V_{GS}=10V, I_D=500mA at V_{GS}=4.5V, I_D=200mA	$R_{DS(on)}$		1.8 2.1	5.0 5.3	Ω
DYNAMIC PARAMETERS					
Input Capacitance at V_{DS}=10V, V_{GS}=0V, f=1MHz	C_{iss}			40	pF
Output Capacitance at V_{DS}=10V, V_{GS}=0V, f=1MHz	C_{oss}			30	pF
Reverse Transfer Capacitance at V_{DS}=10V, V_{GS}=0V, f=1MHz	C_{rss}			10	pF
Turn-On Delay Time at V_{DD}=50V, R_L=250Ω, R_{GEN}=50Ω, V_{GS}=10V	$t_{d(on)}$			10	nS
Turn-Off Delay Time at V_{DD}=50V, R_L=250Ω, R_{GEN}=50Ω, V_{GS}=10V	$t_{d(off)}$			15	nS
Reverse Recovery Time at V_R=25V, V_{GS}=0V I_S=0.3A, di/dt=100A/μs	trr		30		nS
Body-Diode PARAMETERS					
Drain-Source Diode Forward Voltage at I_S=0.3A, V_{GS}=0V	V_{SD}			1.5	V
Maximum Body-Diode Continuous Current	I_S			200	mA

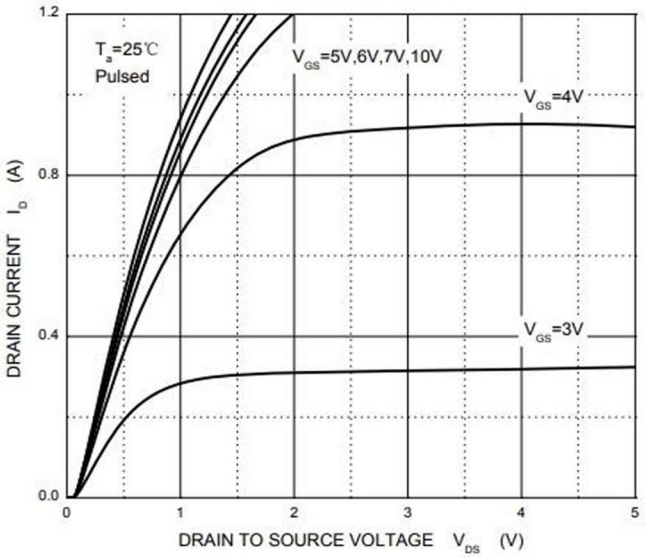
Note：

1) Pulse Test: Pulse width≤300us, Duty cycle ≤2%.

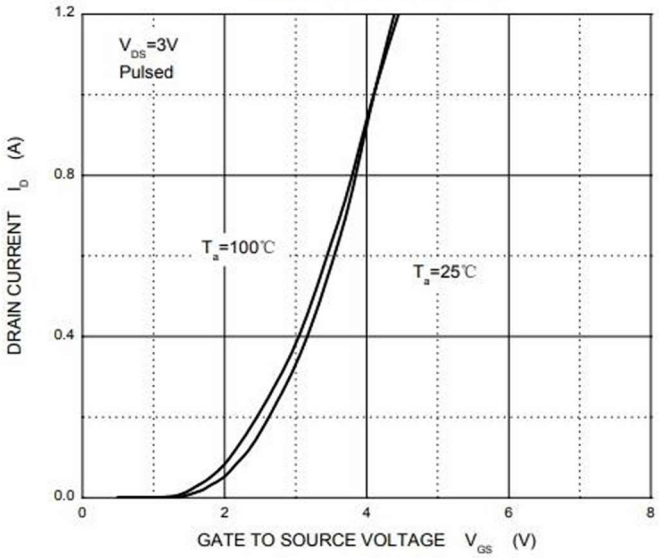
2) Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Electrical Characteristics Curves

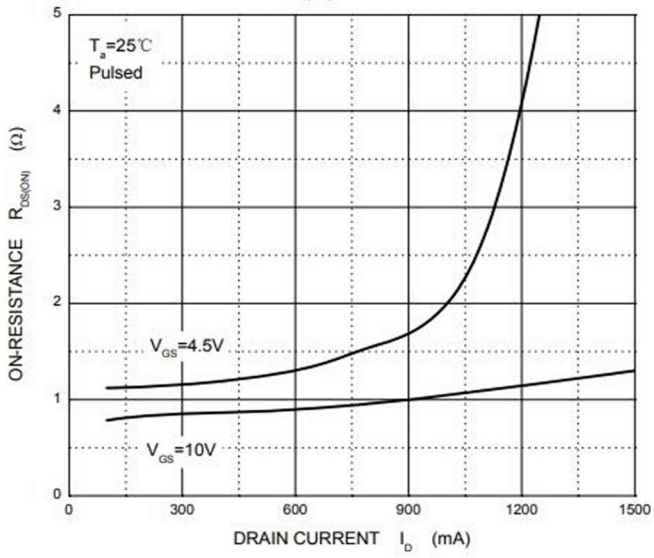
Output Characteristics



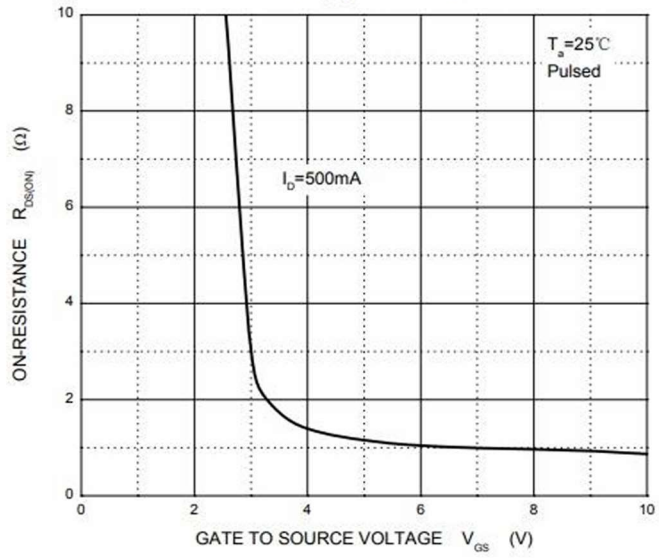
Transfer Characteristics



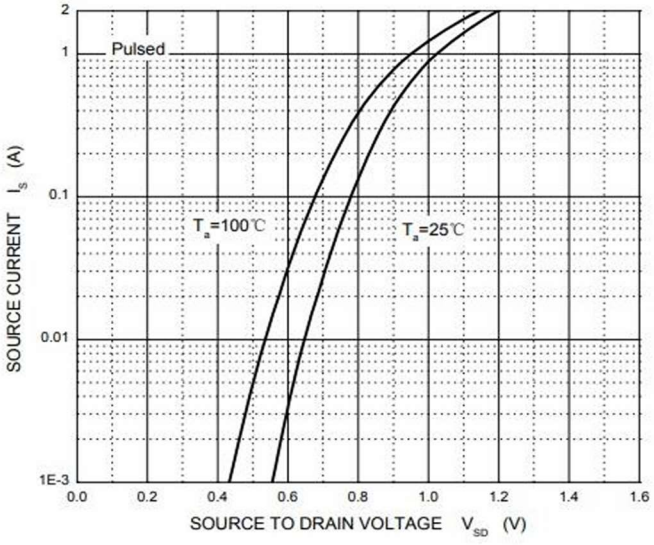
$R_{DS(ON)}$ — I_D



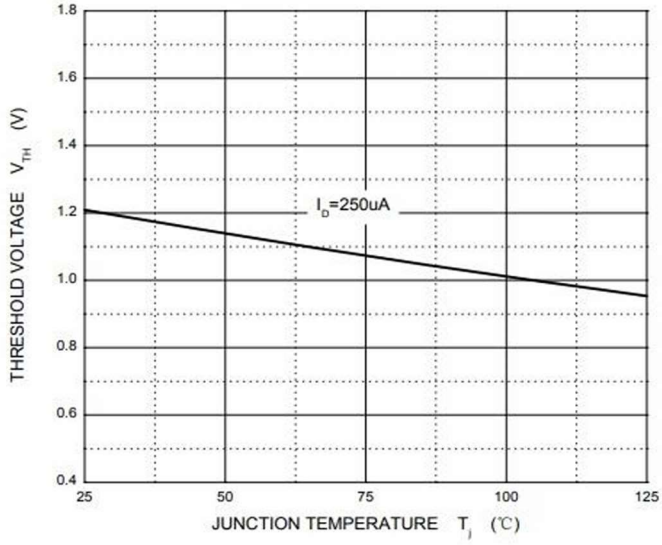
$R_{DS(ON)}$ — V_{GS}



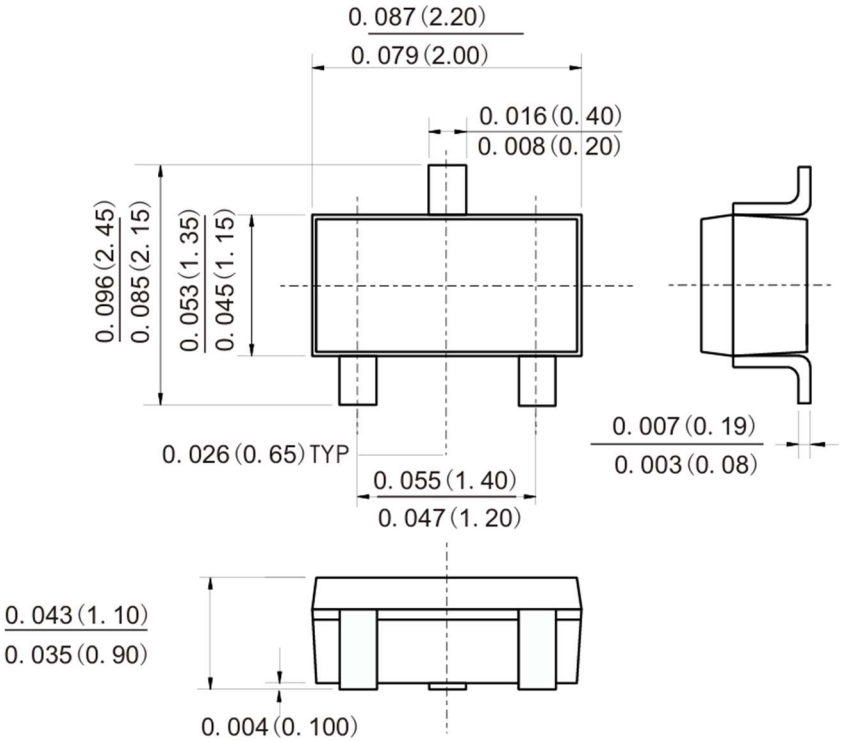
I_S — V_{SD}



Threshold Voltage

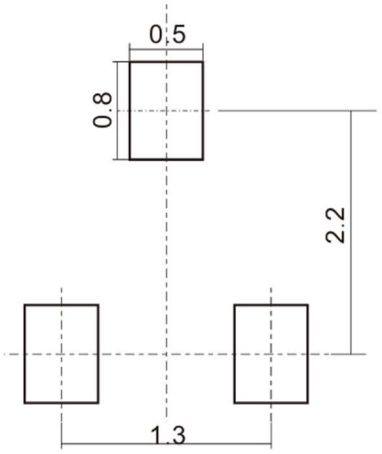


Package Outline Dimensions (Units: mm) SOT-323



Dimensions in inches and (millimetrers)

Suggested Pad Layout



Dimensions in millimetrers

Order Information

Part Number	Package	Quantity
Sh2N7002KW	SOT-323	3000