

## N-Channel MOSFET

### Features

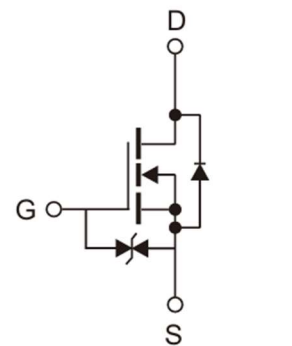
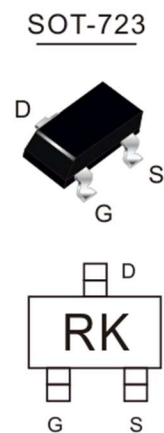
- Trench Power MV MOSFET Technology
- Voltage Controlled Small Signal Switch
- Low Input Capacitance
- ESD Protected Gate

Product Summary		
$V_{DS}$	$R_{DS(on)}$ ( $\Omega$ ) Typ	$I_D$ (A)
60V	1.3@ 10V, 0.5A	0.34
	1.4@ 4.5V, 0.2A	

### Application

- Load Switch for Portable Devices
- Solid-state relays

### Marking information



N-channel MOSFET

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage ( $T_A=25^\circ\text{C}$ )	$V_{GS}$	$\pm 20$	V
Continuous drain current ( $T_A=25^\circ\text{C}$ )	$I_D$	0.34	A
Peak Drain Current, Pulsed <sup>1)</sup>	$I_{DM}$	0.8	A
Power Dissipation	$P_D$	0.15	W
Operating Junction	$T_J$	-55~150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C/W}$

**Characteristics at T<sub>J</sub> = 25°C unless otherwise specified**

Parameter	Symbol	Min.	Typ.	Max.	Unit
<b>STATIC PARAMETERS</b>					
Drain-Source Breakdown Voltage at V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	BV <sub>DSS</sub>	60			V
Drain-Source Leakage Current at V <sub>DS</sub> =48V, V <sub>GS</sub> =0V	I <sub>DSS</sub>			1	μA
Gate Leakage Current at V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	I <sub>GSS</sub>			±10	μA
Gate-Source Threshold Voltage at V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =1mA	V <sub>GS(th)</sub>	1	1.4	2.5	V
Drain-Source On-State Resistance at V <sub>GS</sub> =10V, I <sub>D</sub> =500mA at V <sub>GS</sub> =4.5V, I <sub>D</sub> =200mA	R <sub>DS(on)</sub>		1.3 1.4	4.0 4.5	Ω
<b>DYNAMIC PARAMETERS</b>					
Input Capacitance at V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz	C <sub>iss</sub>			40	pF
Output Capacitance at V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz	C <sub>oss</sub>			30	pF
Reverse Transfer Capacitance at V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz	C <sub>rss</sub>			10	pF
Turn-On Delay Time at V <sub>DD</sub> =25V, R <sub>L</sub> =250Ω, R <sub>GEN</sub> =25Ω, V <sub>GS</sub> =10V	t <sub>d(on)</sub>			10	nS
Turn-On Rise Time at V <sub>DD</sub> =25V, R <sub>L</sub> =250Ω, R <sub>GEN</sub> =25Ω, V <sub>GS</sub> =10V	t <sub>r</sub>			19	nS
Turn-Off Delay Time at V <sub>DD</sub> =25V, R <sub>L</sub> =250Ω, R <sub>GEN</sub> =25Ω, V <sub>GS</sub> =10V	t <sub>d(off)</sub>			15	nS
Turn-Off Fall Time at V <sub>DD</sub> =25V, R <sub>L</sub> =250Ω, R <sub>GEN</sub> =25Ω, V <sub>GS</sub> =10V	t <sub>f</sub>			25	nS
Reverse Recovery Time I <sub>S</sub> =0.3A, di/dt=100A/μs	t <sub>rr</sub>		30		nS
Reverse Recovery Time I <sub>S</sub> =0.3A, di/dt=100A/μs	Q <sub>rr</sub>		30		nc
<b>Body-Diode PARAMETERS</b>					
Drain-Source Diode Forward Voltage at I <sub>S</sub> =0.2A, V <sub>GS</sub> =0V	V <sub>SD</sub>			1.5	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>			0.6	A

Note:

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

**Electrical Characteristics Curves**

Figure 1. Output Characteristics

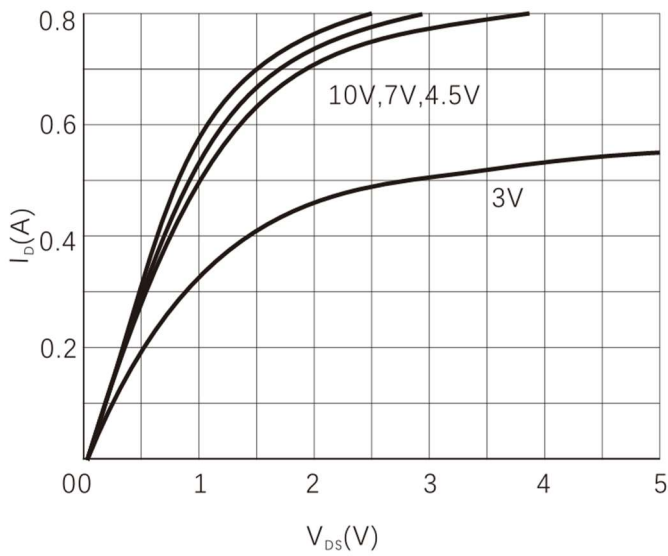


Figure 2. Transfer Characteristics

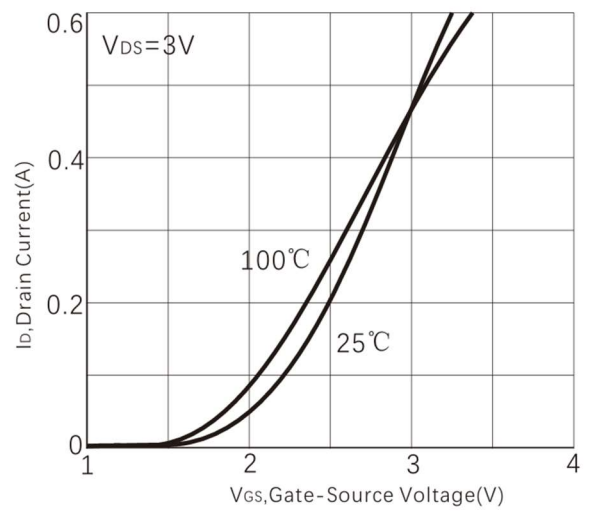


Figure 3. On-Resistance vs. Drain Current

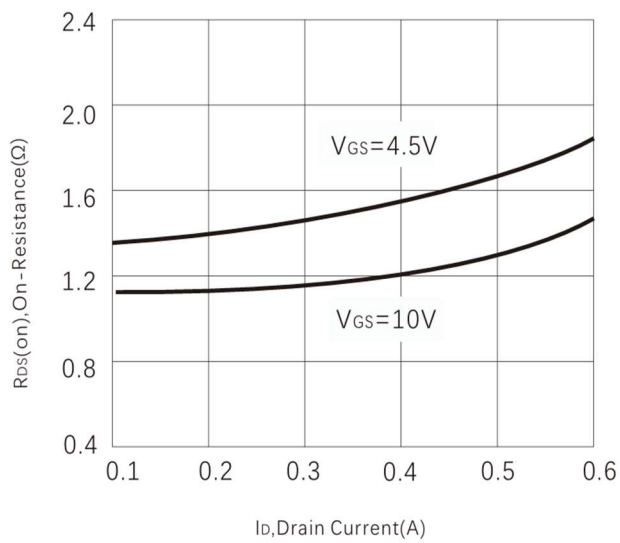


Figure 4. Source-Drain Diode Forward Voltage

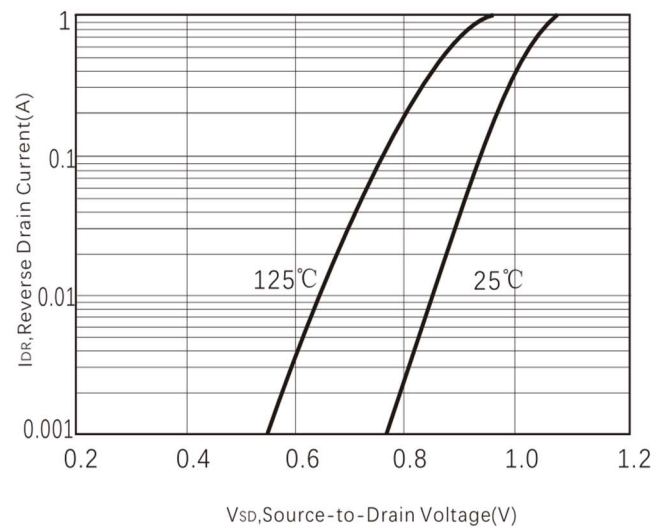


Figure 5.  $R_{DS(ON)}$  vs  $V_{GS}$

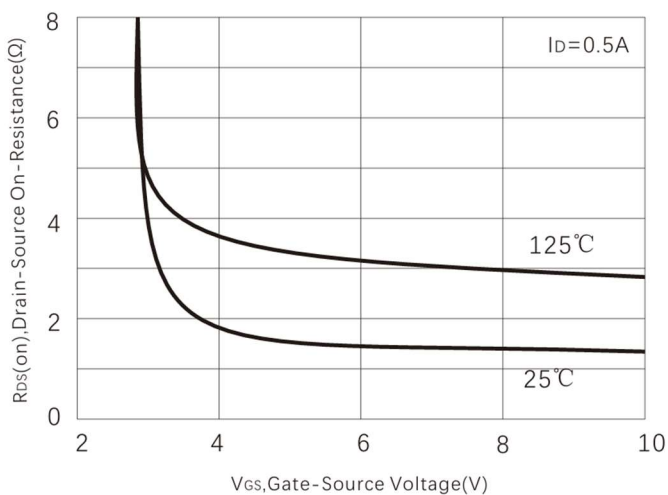
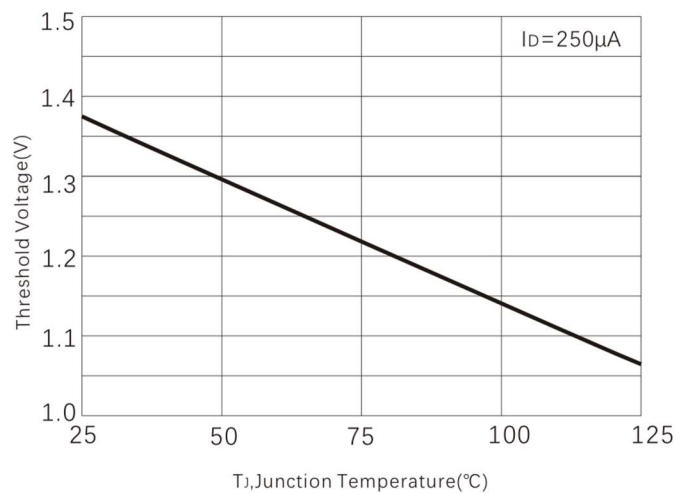
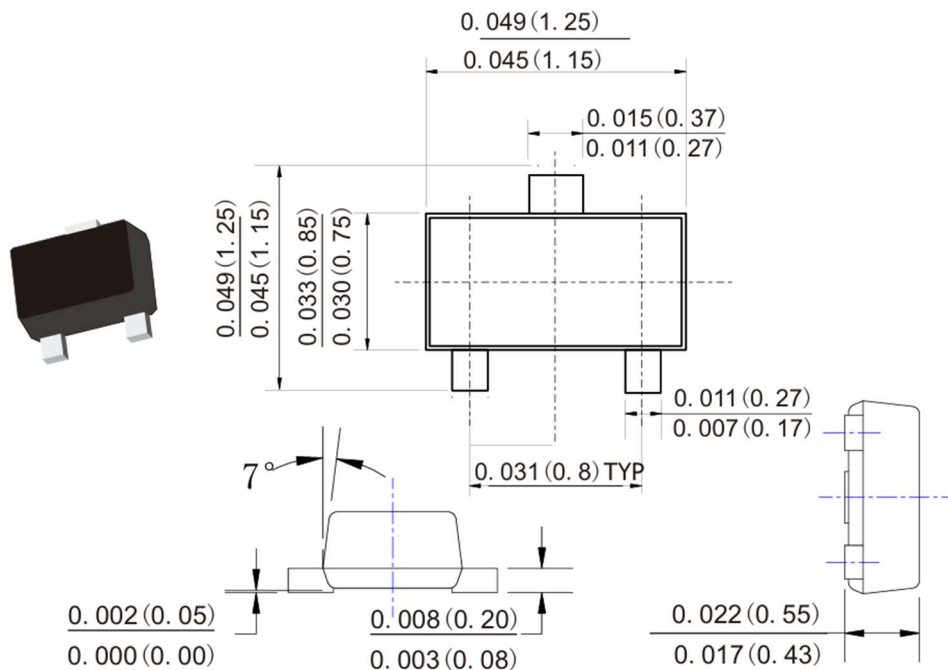


Figure 6. Threshold Voltage

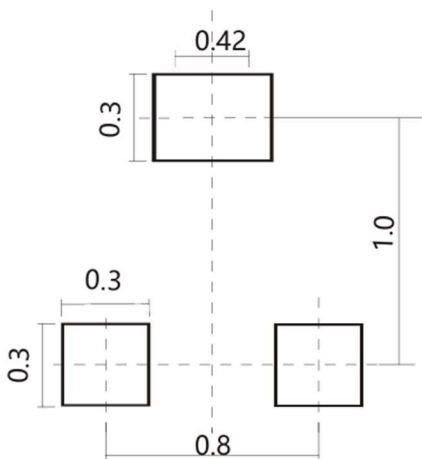


**Package Outline Dimensions (Units: mm) SOT-723**



Dimensions in inches and (millimeters)

**Suggested Pad Layout**



Dimensions in millimeters

**Order Information**

Part Number	Package	Quantity
Sh2N7002KM	SOT-723	3000