SuperMOS – SOT-723 -20V BV_{DSS}, 365mΩ $R_{DS(ON)}$, P-channel MOSFET

1. Description

The RZM001P02T2L(ES) is P-Channel enhancement MOS Field Effect Transistor. Uses advanced technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. Device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product RZM001P02T2L(ES) is Pb-free.

2. Features

- -20V, $R_{DS(ON)}$=365mΩ(Typ.), V_{GS}=-4.5V
  $R_{DS(ON)}$=520mΩ(Typ.), V_{GS}=-2.5V
- High density cell design for low $R_{DS(on)}$
- Material: Halogen free
- Reliable and rugged
- Avalanche Rated
- Low leakage current

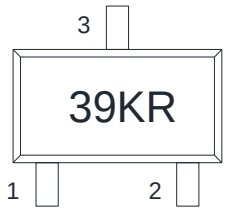
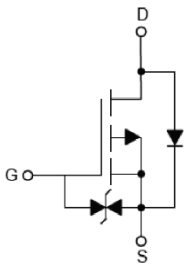
3. Applications

- PWM applications
- Load switch
- Power management in portable/desktop PCs
- DC/DC conversion

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
RZM001P02T2L(ES)	SOT-723	39KR	Halogen free	Tape & Reel	8,000 PCS	UL 94V-0	7 inches

5. Pin Configuration and Functions

Pin	Function	Outline	Circuit Diagram
1	Gate		
2	Source		
3	Drain		

6. Specification

Absolute Maximum Rating & Thermal Characteristics

Ratings at 25 ˚C ambient temperature unless otherwise specified.

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		BV_{DSS}	-20	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current	T_A=25°C	I_D	-0.9	A
	T_A=100°C		-0.6	
Maximum Power Dissipation		P_D	0.35	W
Pulsed Drain Current		I_{DM}	-3.6	A
Operating Junction Temperature		T_J	150	°C
Lead Temperature		T_L	260	°C
Storage Temperature Range		T_{stg}	-55 to 150	°C

Thermal resistance ratings

Single Operation				
Parameter	Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$		357	°C/W

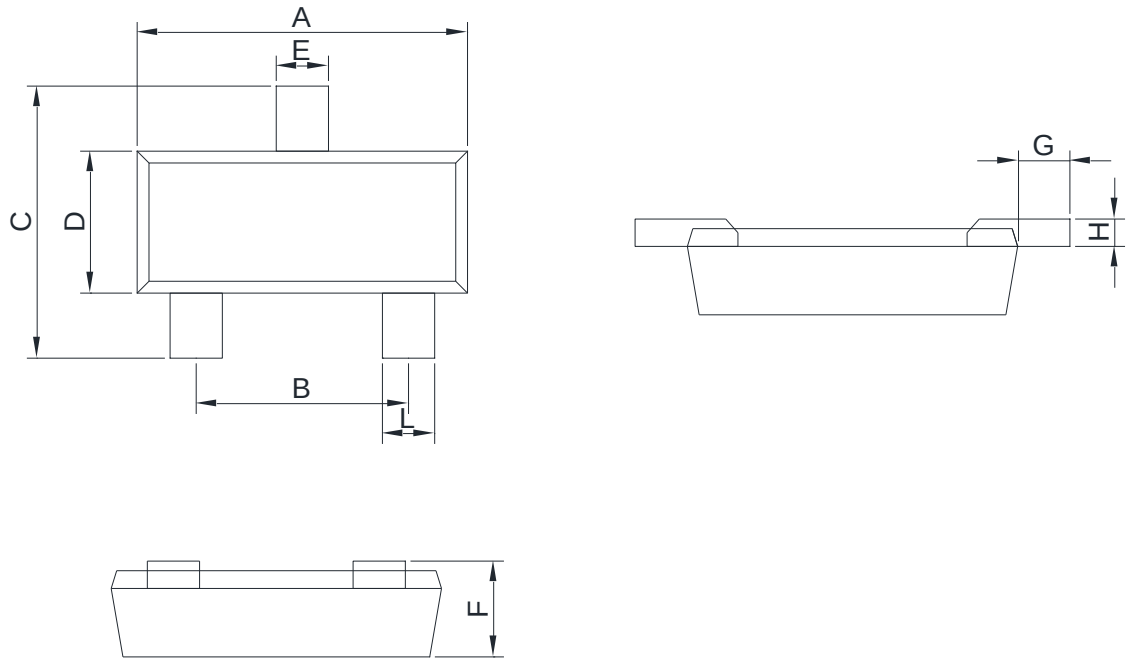
Electrical Characteristics

At TA = 25℃ unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=-250uA	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1	uA
Gate-to-source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±10V			±10	uA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=-250uA	-0.4	-0.65	-1.0	V
Drain-to-source On-resistance	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-0.5A		365	410	mΩ
		V_{GS}=-2.5V, I_D=-0.4A		520	680	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	V_{GS}=0V, f=1MHz, V_{DS}=-10V		72		pF
Output Capacitance	C_{OSS}			20		
Reverse Transfer Capacitance	C_{RSS}			16		
Total Gate Charge	$Q_{G(TOT)}$	V_{GS}=-4.5V, V_{DS}=-10V, I_D=-0.5A		1.25		nC
Gate-to-Source Charge	Q_{GS}			0.37		
Gate-to-Drain Charge	Q_{GD}			0.28		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{d(ON)}$	V_{GS}=-4.5V, V_{DS}=-10V, ID=-0.5A, R_G=-3Ω		4		ns
Rise Time	t_r			19		
Turn-Off Delay Time	$t_{d(OFF)}$			16		
Fall Time	t_f			25		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-0.5A			-1.5	V

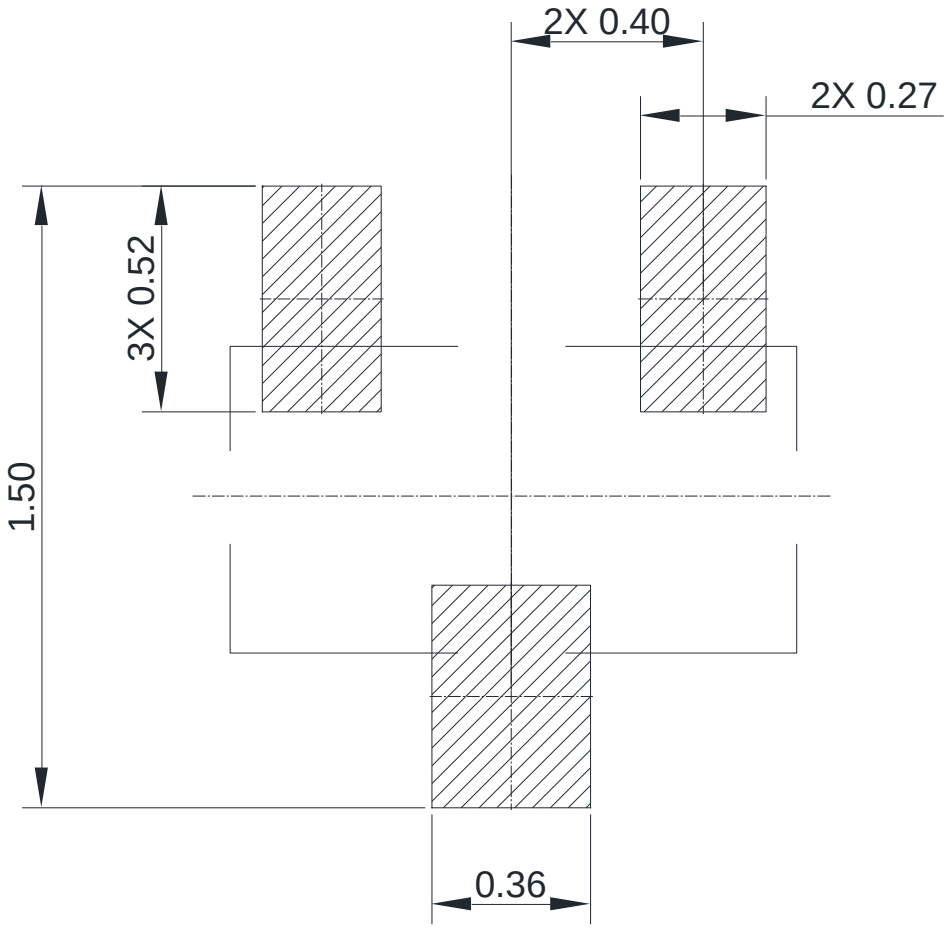
7. Dimension (SOT-723)

POD(Z)



Dimensions in Millimeters					
Symbol	Min.	Max.	Symbol	Min.	Max.
A	1.10	1.30	F	0.40	0.50
B	0.80TYP		G	0.10	0.30
C	1.10	1.30	H	0.06	0.16
D	0.70	0.90	L	0.15	0.25
E	0.15	0.35			

8. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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