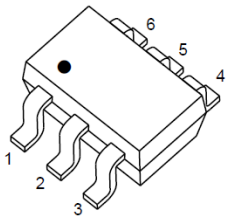
2N7002KDWB

60V N-Channel MOSFET

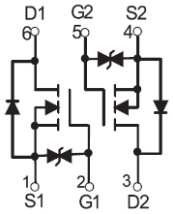
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	1.8Ω@10V	0.34A
	2.1Ω@4.5V	

SOT-363



Schematic diagram



Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge

Application

- Power Management
- Load Switching

Marking

72KB = Device Code

Solid Dot = PIN1

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1,5]	I_D	0.34	A
Pulsed Drain Current[2]	I_{DM}	1	A
Power Dissipation[4,5]	P_D	0.3	W
Thermal Resistance from Junction to Ambient[5]	$R_{\theta JA}$	416	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~ +150	°C

MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	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_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±5	μA
On Characteristics[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 0.3A		1.8	2.5	Ω
		V_{GS} = 4.5V, I_D = 0.2A		2.1	3.0	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 30V, V_{GS} = 0V, f = 1MHz		17		pF
Output Capacitance	C_{oss}			0.2		
Reverse Transfer Capacitance	C_{rss}			0.18		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		18		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 10V, V_{GS} = 10V, I_D = 1A		2.6		nC
Gate-Source Charge	Q_{gs}			0.33		
Gate-Drain Charge	Q_{gd}			1.4		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 30V, V_{GS} = 10V, R_L = 100Ω, R_G = 3Ω		3.8		ns
Turn-On Rise Time	t_r			2.9		
Turn-Off Delay Time	$t_{d(off)}$			14		
Turn-Off Fall Time	t_f			8		
Source-Drain Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = 0.3A			1.2	V

Notes :

1.The maximum current rating is limited by package.

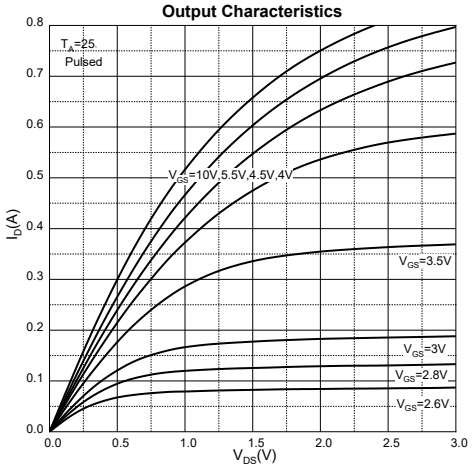
2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

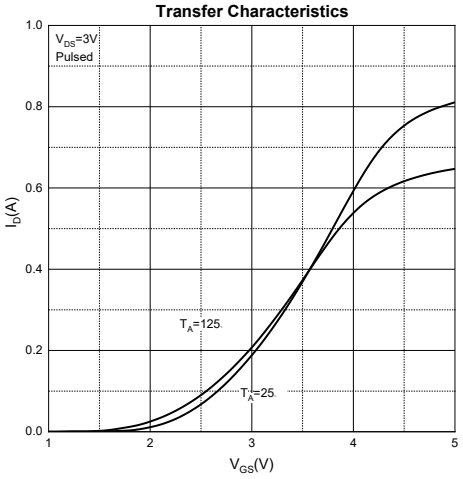
3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

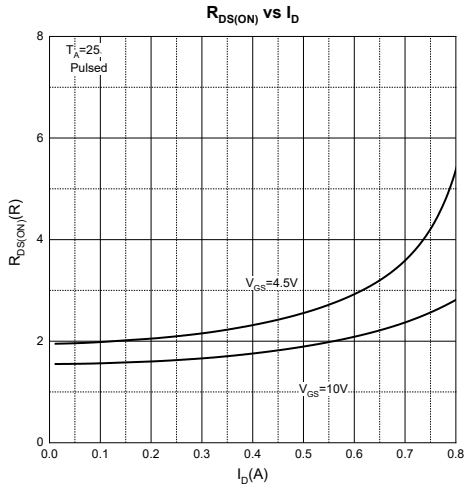
4.The power dissipation PD is limited by TJ(MAX) = 150°C.

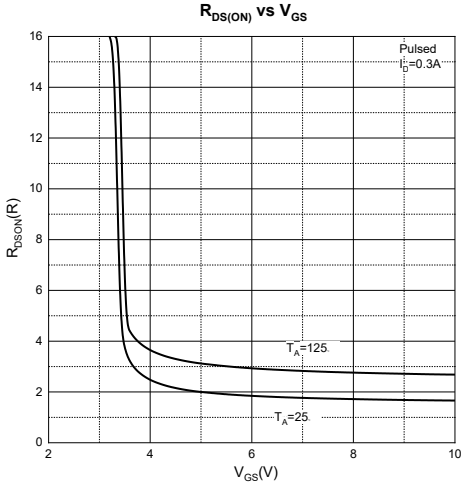
5.Device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C.

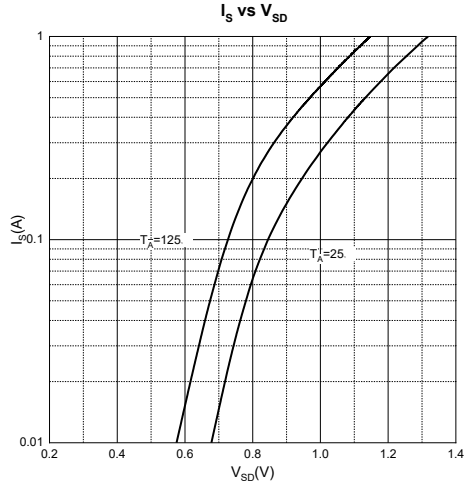
Typical Characteristics

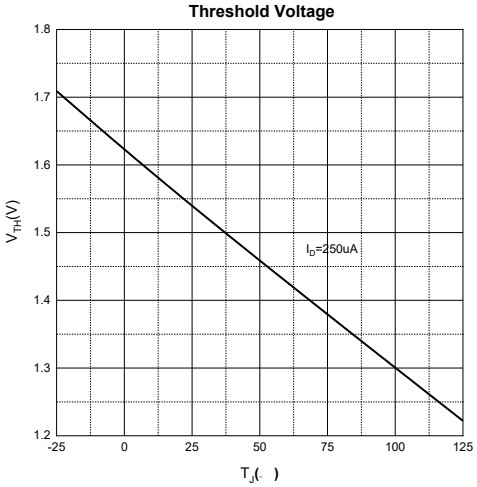




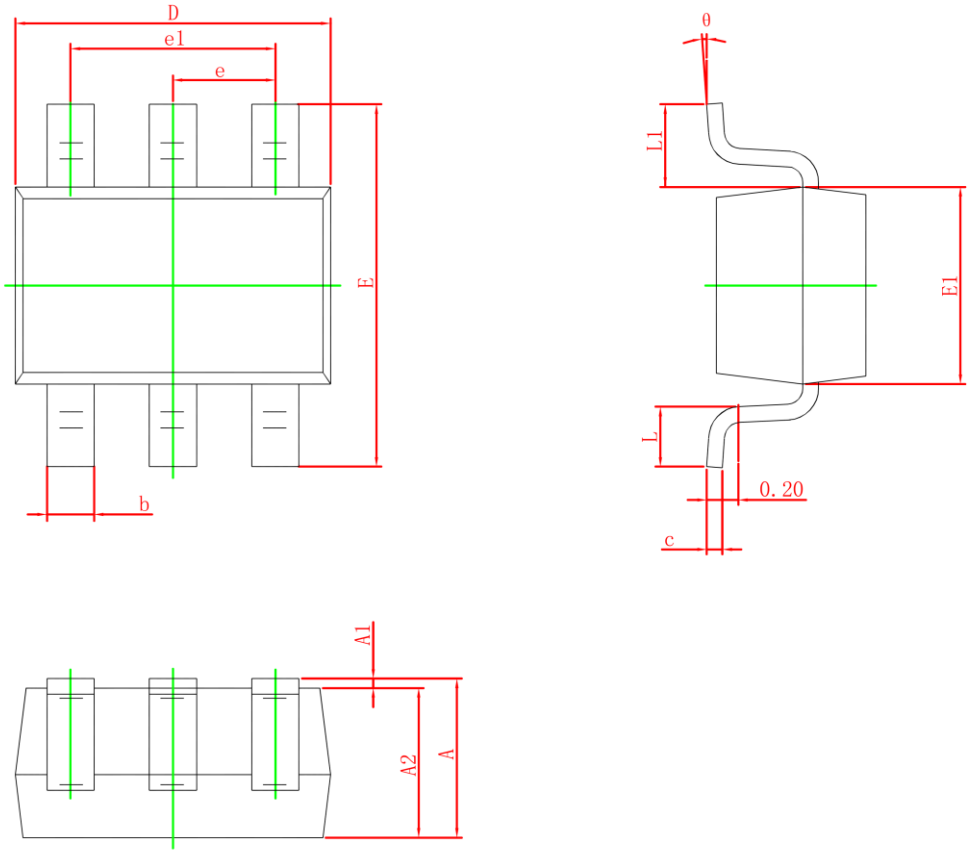








SOT-363 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A1	0	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	1.800	2.200	0.071	0.087
E	2.000	2.450	0.079	0.096
E1	1.150	1.350	0.045	0.053
e	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L1	0.525REF		0.021REF	
L	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Attention：

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