HIGH DIODE

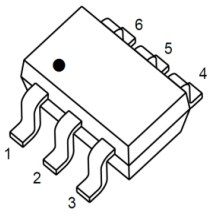
3439KDW

20V N- and P- Channel MOSFET

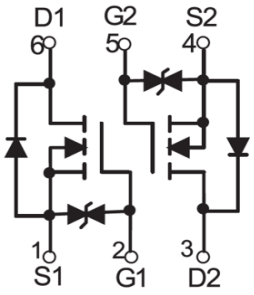
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	170mΩ@4.5V	0.75A
	230mΩ@2.5V	
	330mΩ@1.8V	
-20V	400mΩ@-4.5V	-0.66A
	570mΩ@-2.5V	
	810mΩ@-1.8V	

SOT-363



Schematic diagram



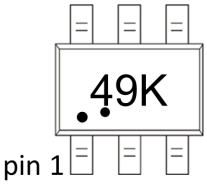
Feature

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

Application

- Load Switch
- DC/DC Converter

MARKING:



ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ unless otherwise noted)

Parameter		Symbol	Value	Value	Unit
Drain - Source Voltage		V_{DS}	20	-20	V
Gate - Source Voltage		V_{GS}	±10	±10	V
Continuous Drain Current[1,5]	T_C = 25℃	I_D	0.75	-0.66	A
Pulsed Drain Current[2]		I_{DM}	1.8	-1.2	A
Power Dissipation[4]	T_C= 25℃	P_D	0.15		W
Thermal Resistance from Junction to Ambient[5]		$R_{\theta JA}$	833		℃/W
Junction Temperature		T_J	150		℃
Storage Temperature		T_{STG}	-55~ +150		℃

MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25℃ unless otherwise noted) NMOS:

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±10V, V_{DS} = 0V			±10	μA
On Characteristics[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.4	0.7	1.0	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 0.65A		170	260	mΩ
		V_{GS} = 2.5V, I_D = 0.55A		230	360	
		V_{GS} = 1.8V, I_D = 0.45A		330	590	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz		54.1		pF
Output Capacitance	C_{oss}			12.8		
Reverse Transfer Capacitance	C_{rss}			10.3		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		56		Ω
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 15V, V_{GS} = 4.5V, I_D = 0.5A, R_G = 10Ω		6.7		ns
Turn-on Rise Time	t_r			4.8		
Turn-off Delay Ttime	$t_{d(off)}$			17.3		
Turn-off Fall Time	t_f			7.4		
Source - Drain Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = 0.5A			1.2	V

MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25℃ unless otherwise noted) PMOS:

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -20V, V_{GS} = 0V			-1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±10V, V_{DS} = 0V			±10	nA
On Characteristics[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.4	-0.7	-1.0	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -1A		400	580	mΩ
		V_{GS} = -2.5V, I_D = -0.8A		570	840	
		V_{GS} = -1.8V, I_D = -0.5A		810	1140	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = -10V, V_{GS} = 0V, f = 1MHz		76		pF
Output Capacitance	C_{oss}			14.6		
Reverse Transfer Capacitance	C_{rss}			12.2		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		68		Ω
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -10V, V_{GS} =-4.5V, I_D = -0.2A, R_G = 10Ω		9		ns
Turn-on Rise Time	t_r			5.7		
Turn-off Delay Ttime	$t_{d(off)}$			32.6		
Turn-off Fall Time	t_f			20.3		
Source - Drain Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = -0.5A			1.2	V

Notes :

1.The maximum current rating is limited by package.

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

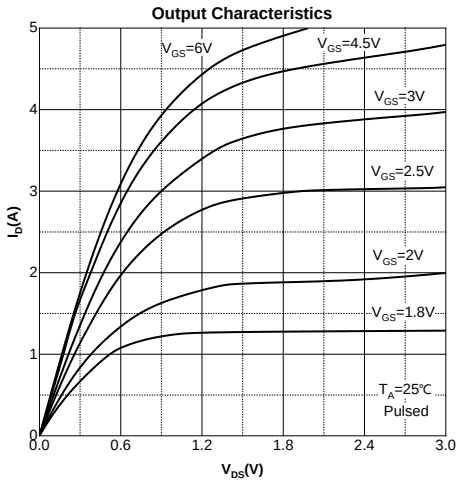
3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

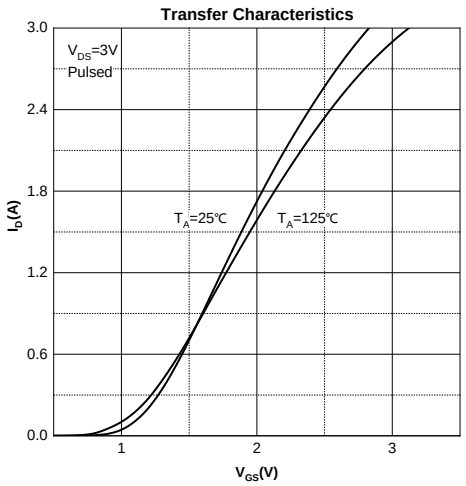
4.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

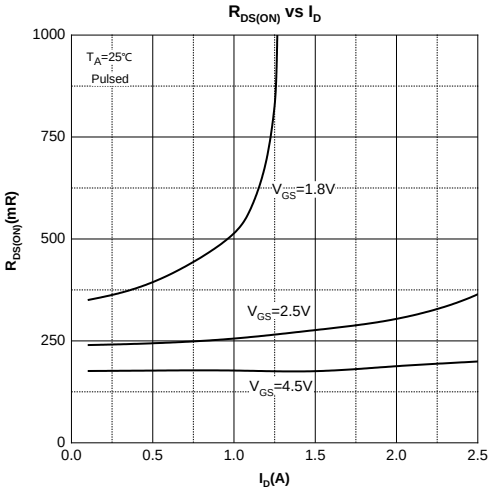
5.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

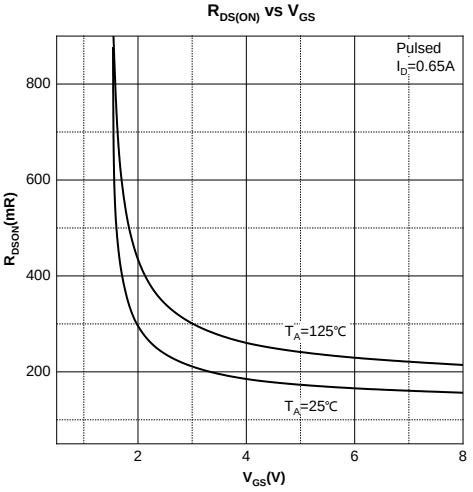
Typical Characteristics

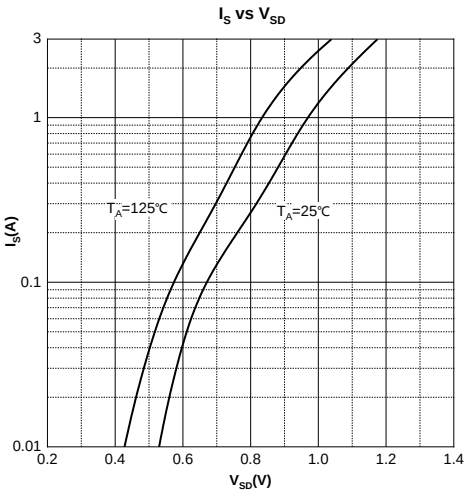
NMOS:

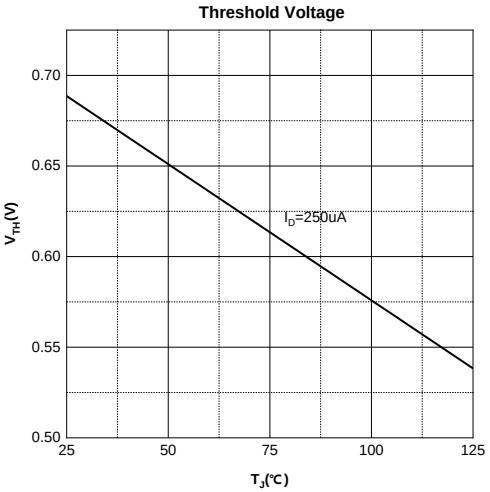












Typical Characteristics

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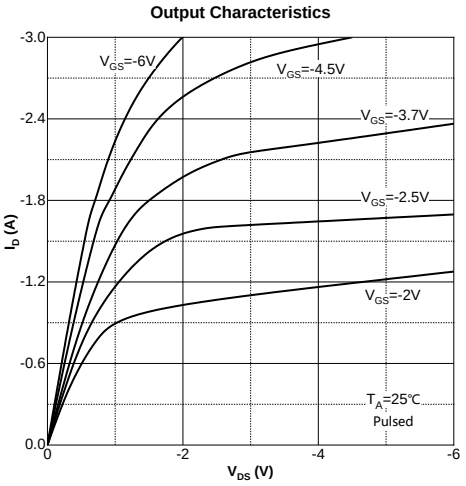
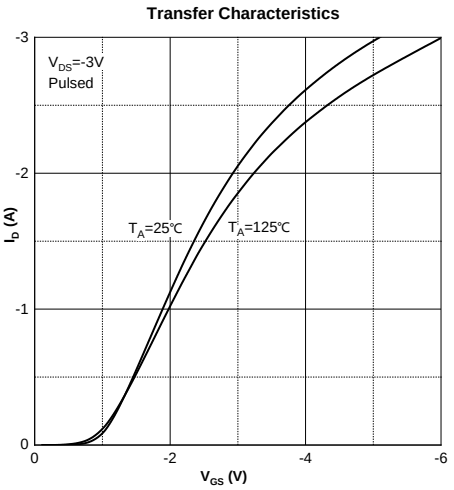
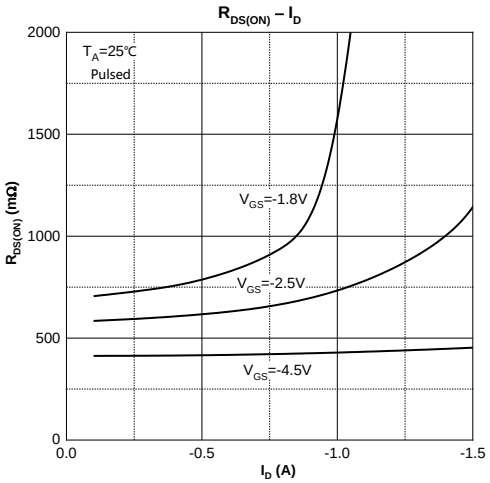
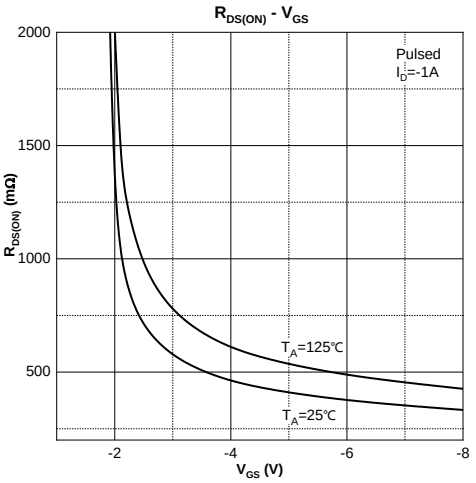
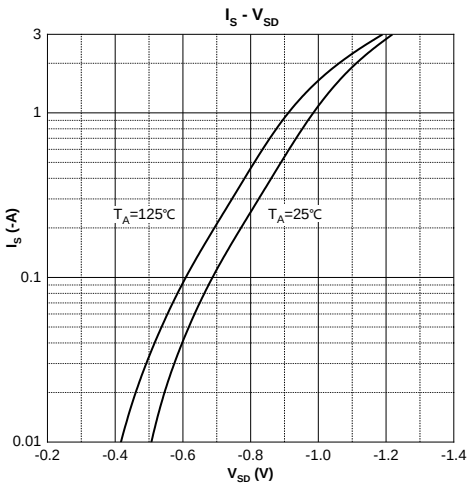
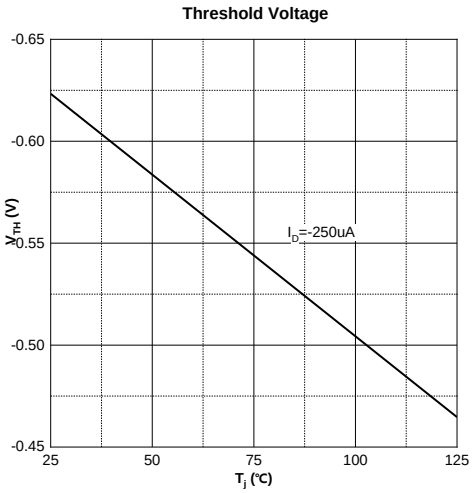




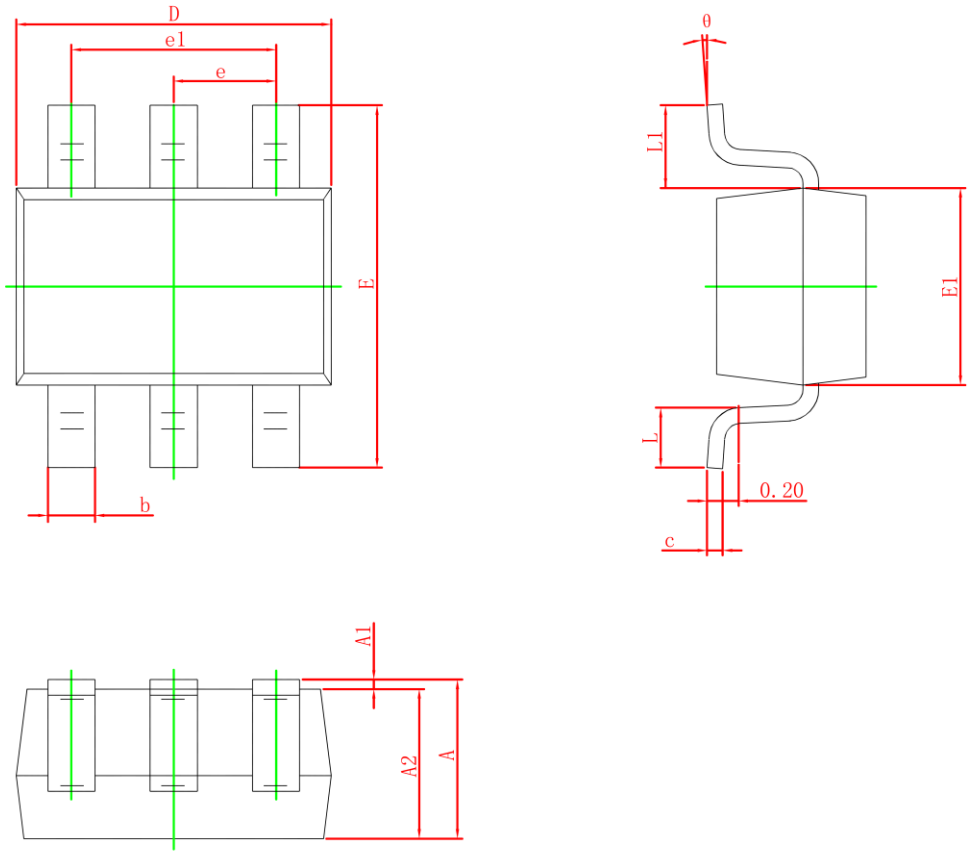








SOT-363 Package Outline Dimensions



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°