Elektronische Bauelemente

SUM3439

N-Ch: 0.75A, 20V, $R_{DS(ON)}$ 380 mΩ
P-Ch: -0.66A, -20V, $R_{DS(ON)}$ 520 mΩ
N & P-Ch Enhancement Mode Power MOSFET

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

SUM3439 is the highest performance trench N-ch and P-ch MOSFET providing excellent $R_{DS(ON)}$ and gate charge for most synchronous buck converter applications

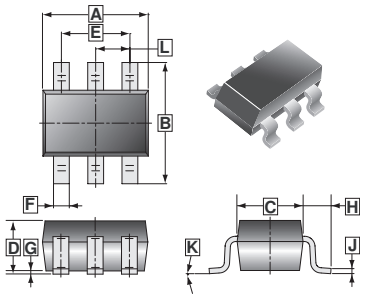
FEATURES

- Surface mount package
- Low $R_{DS(ON)}$
- Operated at low logic level gate drive
- ESD protected gate

MARKING

49K

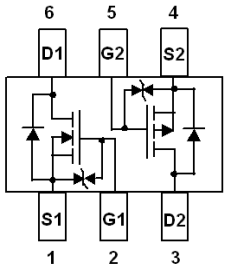
SOT-363



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.80	2.20	G	0.100 REF.	
B	1.80	2.45	H	0.525 REF.	
C	1.15	1.35	J	0.08	0.25
D	0.80	1.10	K	8°	
E	1.10	1.50	L	0.650 TYP.	
F	0.10	0.35			

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-363	3K	7 inch



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

Parameter	Symbol	Rating		Unit
		N-CH	P-CH	
Drain-Source Voltage	V_{DS}	20	-20	V
Typical Gate-Source Voltage	V_{GS}	±12	±12	V
Continuous Drain Current [1]	I_D	0.75	-0.66	A
Pulsed Drain Current@ tp=10μs	I_{DM}	1.8	-1.2	A
Thermal Resistance from Junction to Ambient [1]	$R_{\theta JA}$	833		℃/ W
Lead Temperature for Soldering Purposes@ 1/8" from case for 10s	T_L	260		℃
Operating Junction and Storage Temperature Range	T_J, T_{STG}	150, -55~150		℃

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Ch	Min.	Typ.	Max.	Unit	Test Condition
Static Characteristics							
Drain-Source Breakdown Voltage	BV_{DSS}	N	20	-	-	V	V_{GS}=0, I_D=250μA
		P	-20	-	-		V_{GS}=0, I_D= -250μA
Gate Threshold Voltage [2]	$V_{GS(th)}$	N	0.35	-	1.1	V	V_{DS}=V_{GS}, I_D=250μA
		P	-0.35	-	-1.1		V_{DS}=V_{GS}, I_D= -250μA
Forward Transconductance [2]	gFS	N	-	1.6	-	S	V_{DS}=10V, I_D=0.8A
		P	-	1.2	-		V_{DS}= -10V, I_D= -0.54A
Gate-Body Leakage Current	I_{GSS}	N	-	-	±20	μA	V_{DS}=0V, V_{GS}= ±10V
		P	-	-	±20		V_{DS}=0V, V_{GS}= ±10V
Zero Gate Voltage Drain Current	I_{DSS}	N	-	-	1	μA	V_{DS}=20V, V_{GS}=0
		P	-	-	-1		V_{DS}= -20V, V_{GS}=0
Drain-Source On-Resistance [2]	$R_{DS(ON)}$	N	-	-	380	mΩ	V_{GS}=4.5V, I_D=0.65A
			-	-	450		V_{GS}=2.5V, I_D=0.55A
			-	-	800		V_{GS}=1.8V, I_D=0.45A
		P	-	-	520		V_{GS}= -4.5V, I_D= -1A
			-	-	700		V_{GS}= -2.5V, I_D= -0.8A
			-	950	-		V_{GS}= -1.8V, I_D= -0.5A
Diode Forward Voltage	V_{SD}	N	-	-	1.2	V	V_{GS}=0, I_S=0.15A
		P	-	-	-1.2		V_{GS}=0, I_S= -0.5A
Dynamic Characteristics							
Input Capacitance	C_{iss}	N	-	79	-	pF	N-Channel V_{DS}=16V, V_{GS}=0V, f=1MHz P-Channel V_{DS}= -16V, V_{GS}=0V, f=1MHz
		P	-	113	-		
Output Capacitance	C_{oss}	N	-	13	-		
		P	-	15	-		
Reverse Transfer Capacitance	C_{rss}	N	-	9	-		
		P	-	9	-		
Switching Characteristics [3]							
Turn-On Delay Time [2]	$T_{d(on)}$	N	-	6.7	-	nS	N-Channel V_{DS}=10V, I_D=0.5A, V_{GS}=4.5V, R_{GEN}=10Ω P-Channel V_{DS}= -10V, I_D= -0.2A, V_{GS}= -4.5V, R_{GEN}=10Ω
		P	-	9	-		
Rise Time	T_r	N	-	4.8	-		
		P	-	5.8	-		
Turn-Off Delay Time	$T_{d(off)}$	N	-	17.3	-		
		P	-	32.7	-		
Fall Time	T_f	N	-	7.4	-		
		P	-	20.3	-		

Notes:
1. Surface mounted on a FR-4 board with a recommended minimum pad.
2. Pulse Test: pulse width=300μs, duty cycle≦2%.
3. Switching characteristics are independent from the operating junction temperature.

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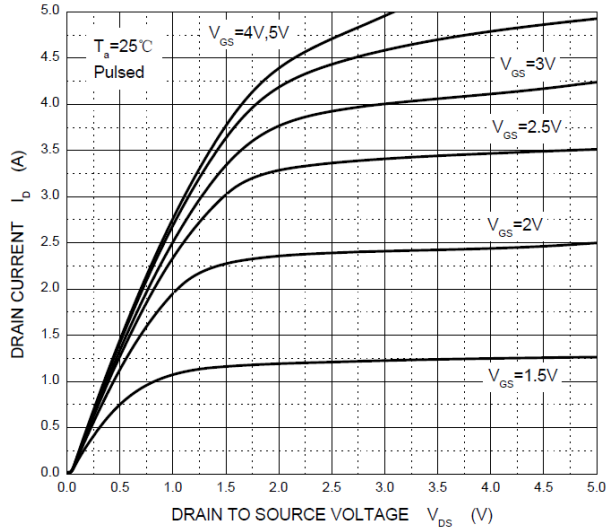
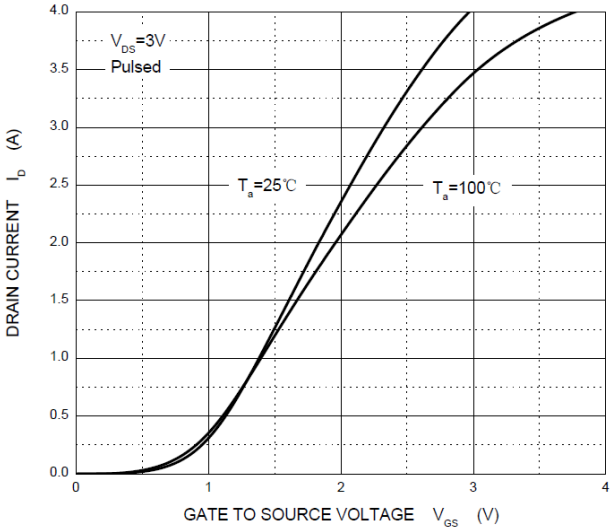
CHARACTERISTIC CURVES (N-Channel)

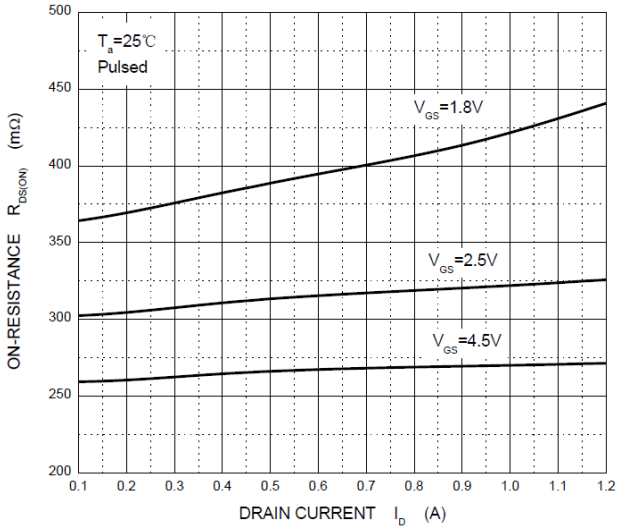
Output Characteristics



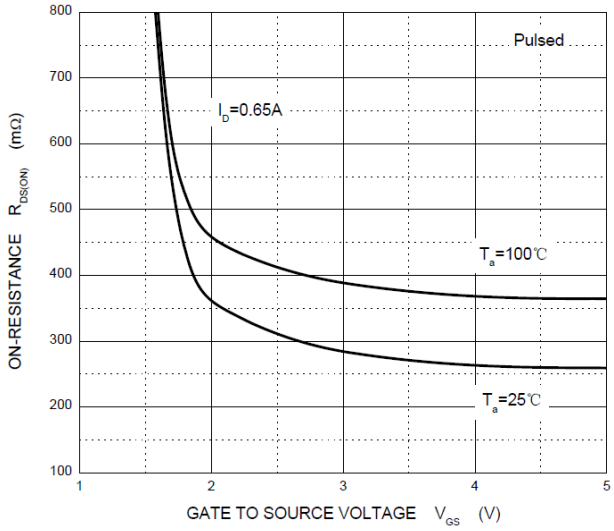
Transfer Characteristics



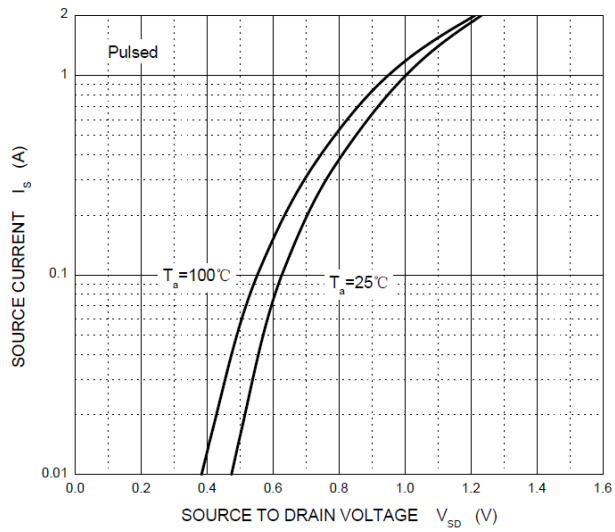
$R_{DS(ON)}$ — I_D



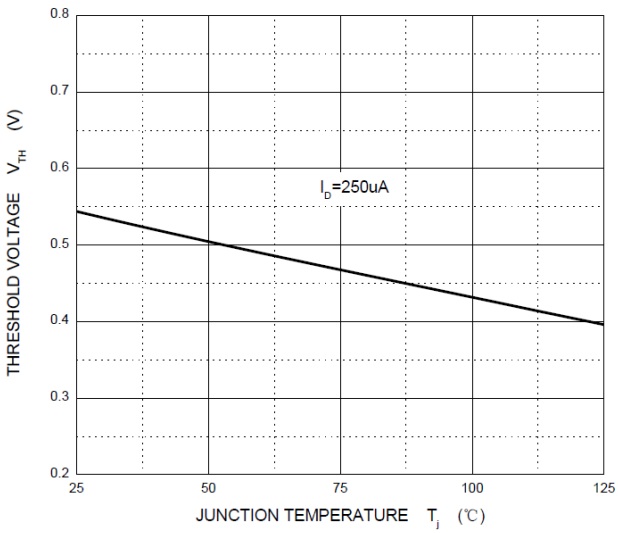
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

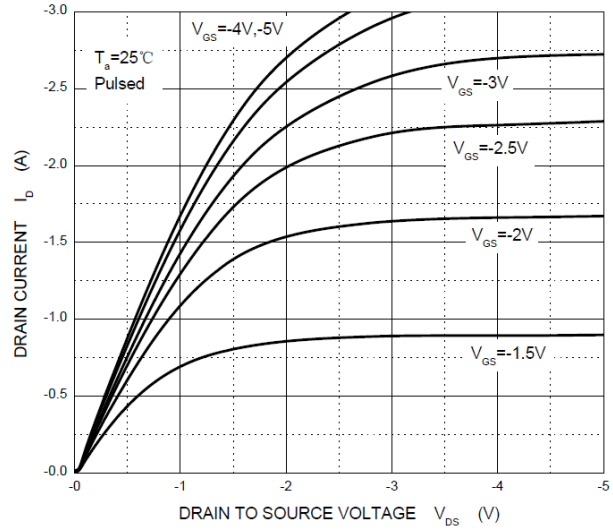


Threshold Voltage

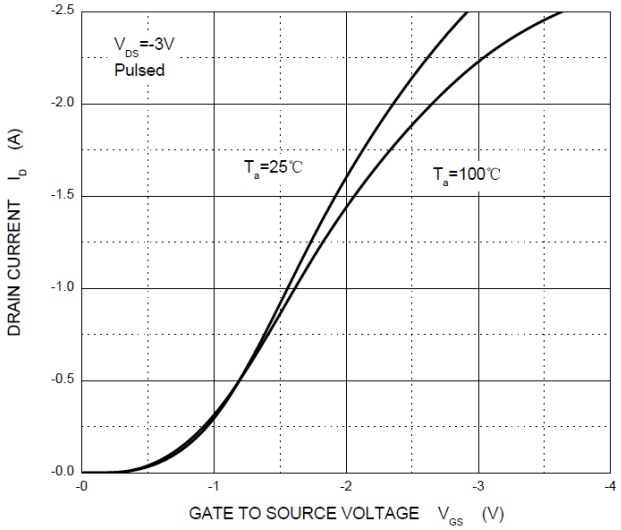


CHARACTERISTIC CURVES (P-Channel)

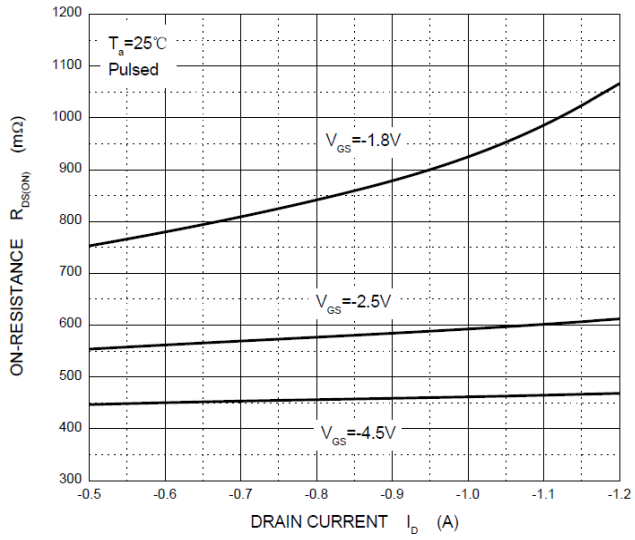
Output Characteristics



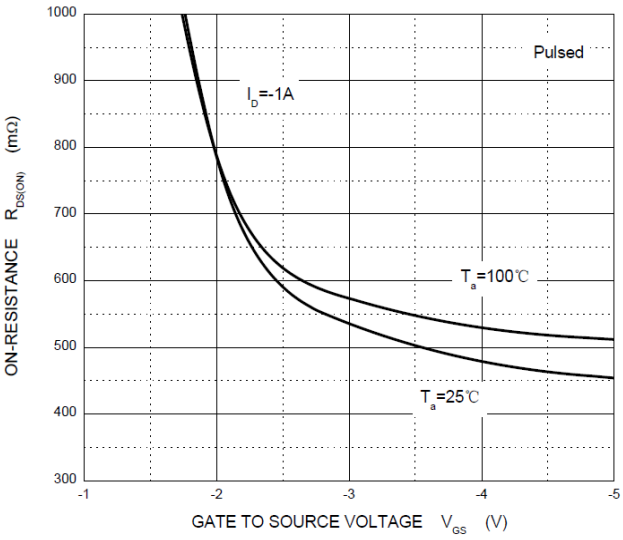
Transfer Characteristics



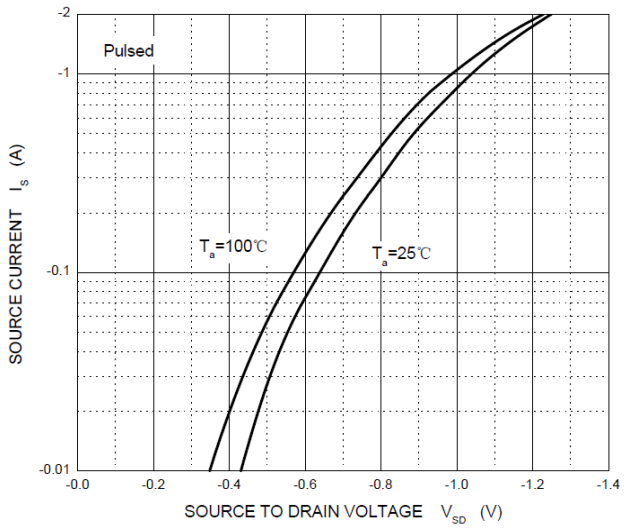
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage