

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

DESCRIPTION

SSI3439J is N and P Channel enhancement MOS Field Effect Transistor. It uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for the use in DC-DC conversion, load switch and level shift.

FEATURES

- Surface mount package
- Low $R_{DS(ON)}$
- ESD-protecting gate

APPLICATIONS

- Load/power switching
- Interfacing switching
- Battery management for Ultra small portable electronics

MARKING

49K

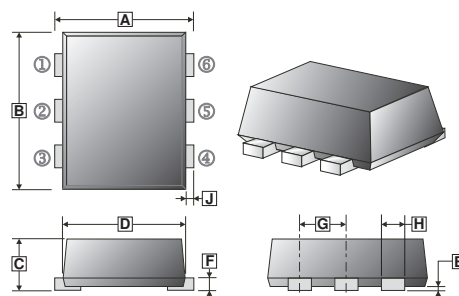
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-563	3K	7 inch

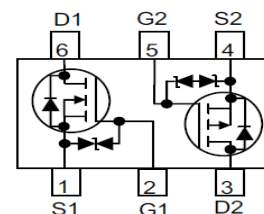
MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

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

SOT-563



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.50	1.70	F	0.09	0.16
B	1.50	1.70	G	0.45	0.55
C	0.525	0.60	H	0.17	0.27
D	1.10	1.30	J	0.10	0.30
E	-	0.05			



ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

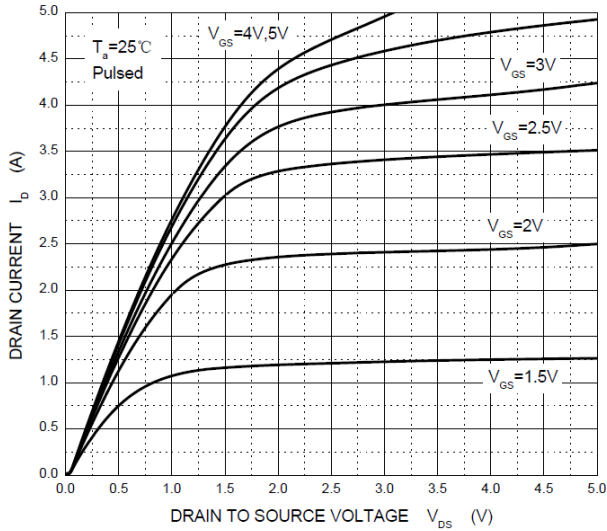
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition	
Static Characteristics							
Drain-Source Breakdown Voltage	N-Ch	V _{(BR)DSS}	20	-	-	V	V _{GS} =0, I _D =250μA
	P-Ch		-20	-	-		V _{GS} =0, I _D = -250μA
Zero Gate Voltage Drain Current	N-Ch	I _{DSS}	-	-	1	μA	V _{DS} =20V, V _{GS} =0
	P-Ch		-	-	-1		V _{DS} = -20V, V _{GS} =0
Gate-Source Leakage Current	N-Ch	I _{GSS}	-	-	±20	μA	V _{DS} =0V, V _{GS} =±10V
	P-Ch		-	-	±20		
Gate-Threshold Voltage ²	N-Ch	V _{GS(TH)}	0.35	-	1.1	V	V _{DS} =V _{GS} , I _D =250μA
	P-Ch		-0.35	-	-1.1		V _{DS} =V _{GS} , I _D = -250μA
Drain-Source On Resistance ²	N-Ch	R _{DS(ON)}	-	-	380	mΩ	V _{GS} =4.5V, I _D =0.65A
	P-Ch		-	-	520		V _{GS} = -4.5V, I _D = -1A
	N-Ch		-	-	450		V _{GS} =2.5V, I _D =0.55A
	P-Ch		-	-	700		V _{GS} = -2.5V, I _D = -0.8A
	N-Ch		-	-	800		V _{GS} =1.8V, I _D =0.45A
	P-Ch		-	950	-		V _{GS} = -1.8V, I _D = -0.5A
Forward Transfer conductance ²	N-Ch	g _{FS}	-	1.6	-	S	V _{DS} =10V, I _D =0.8A
	P-Ch		-	1.2	-		V _{DS} = -10V, I _D = -0.54A
Diode Forward Voltage	N-Ch	V _{SD}	-	-	1.2	V	I _S =0.15A, V _{GS} =0
	P-Ch		-	-	-1.2		I _S = -0.5A, V _{GS} =0
Dynamic Characteristics							
Input Capacitance	N-Ch	C _{ISS}	-	79	-	pF	N-Ch: V _{DS} =16V, V _{GS} =0, f=1MHz P-Ch: V _{DS} = -16V, V _{GS} =0, f=1MHz
	P-Ch		-	113	-		
Output Capacitance	N-Ch	C _{OSS}	-	13	-		
	P-Ch		-	15	-		
Reverse Transfer Capacitance	N-Ch	C _{RSS}	-	9	-		
	P-Ch		-	9	-		
Switching Characteristics³							
Turn-on Delay Time	N-Ch	T _{d(ON)}	-	6.7	-	nS	N-Ch: V _{DS} =10V, V _{GS} =4.5V I _D =0.5A, R _{GEN} =10Ω P-Ch: V _{DS} = -10V, V _{GS} = -4.5V I _D = -0.2A, R _{GEN} =10Ω
	P-Ch		-	9	-		
Rise Time	N-Ch	T _r	-	4.8	-		
	P-Ch		-	5.8	-		
Turn-off Delay Time	N-Ch	T _{d(OFF)}	-	17.3	-		
	P-Ch		-	32.7	-		
Fall Time	N-Ch	T _f	-	7.4	-		
	P-Ch		-	20.3	-		

Notes:

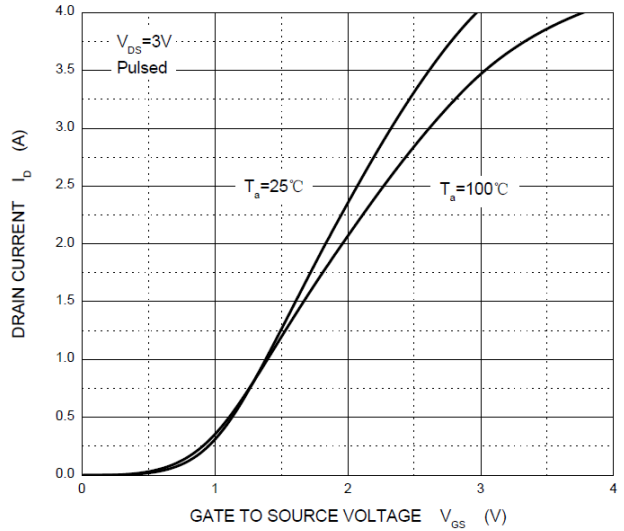
- The surface of the device is mounted on a FR4 board using recommended minimum pad size.
- Pulse Test: Pulse width=300μs, duty cycle ≤2%.
- Switching characteristics are independent from the operating junction temperature.

CHARACTERISTIC CURVES (N-Channel)

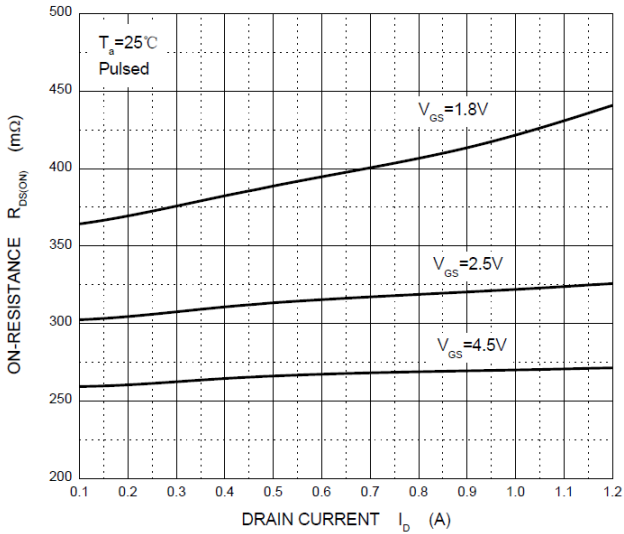
Output Characteristics



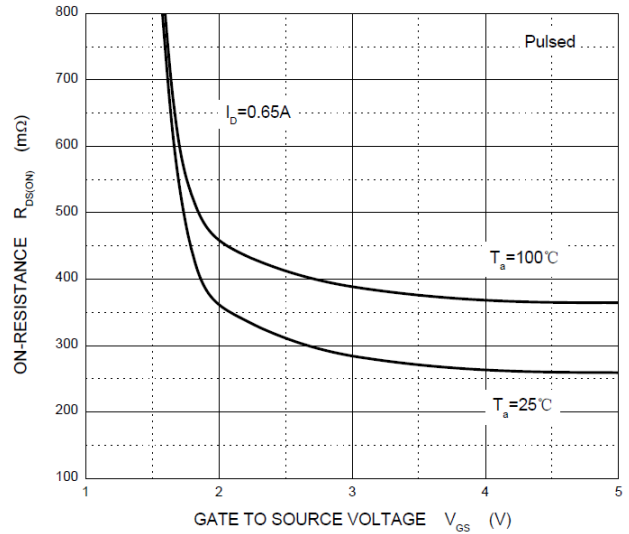
Transfer Characteristics



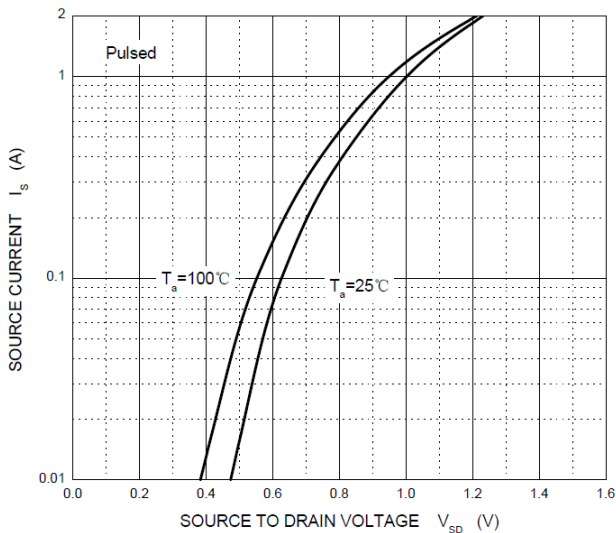
$R_{DS(ON)}$ — I_D



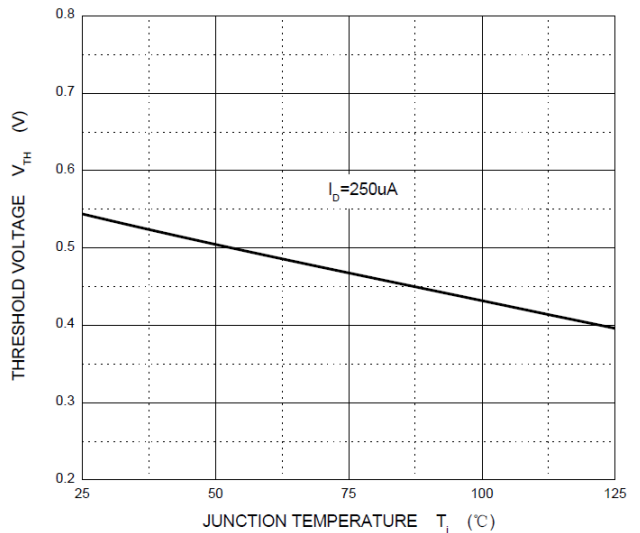
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

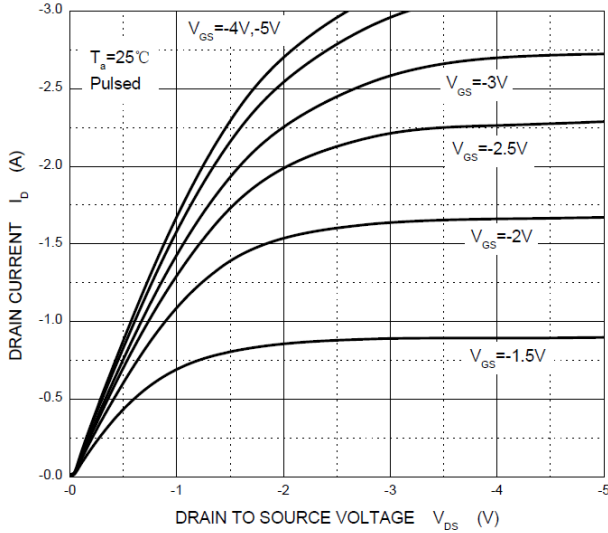


Threshold Voltage

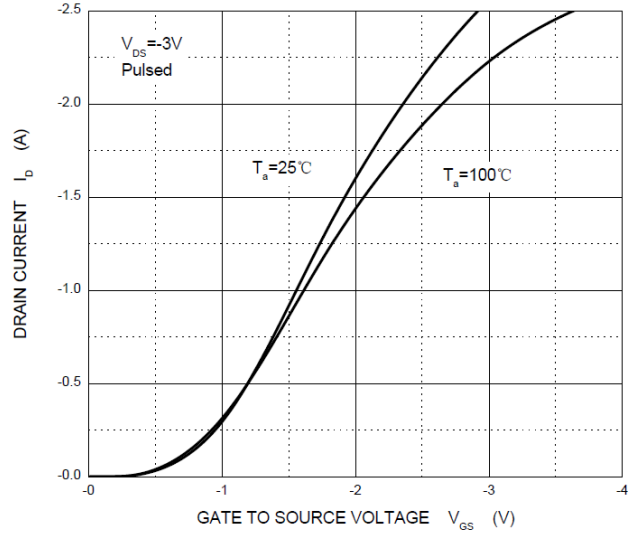


CHARACTERISTIC CURVES (P-Channel)

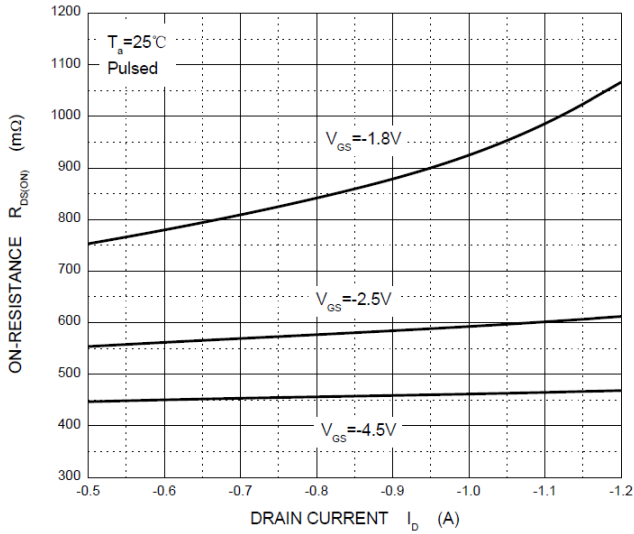
Output Characteristics



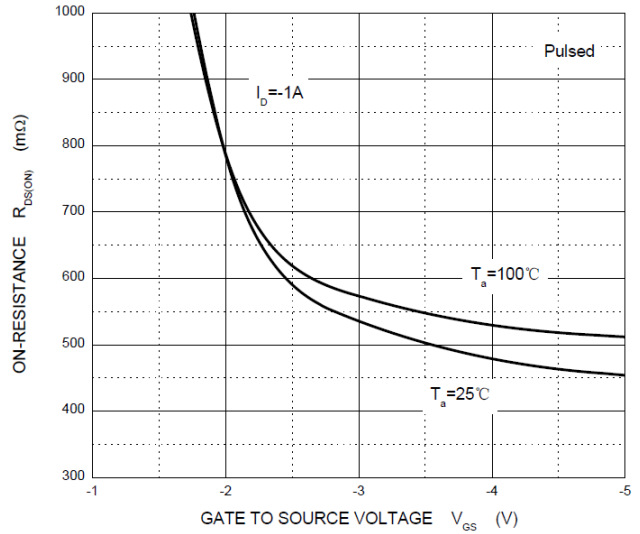
Transfer Characteristics



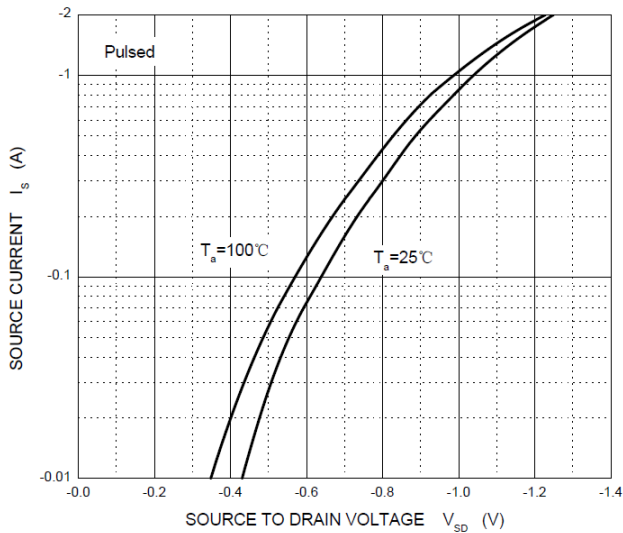
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage

