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CJX3439K-TP

N Channel +P Channel MOSFET

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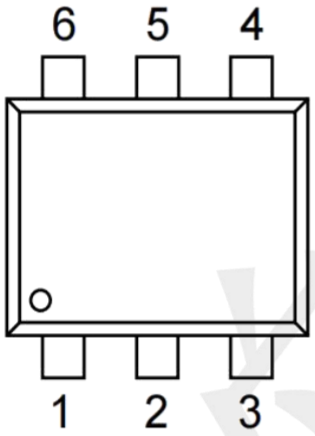
Application

- Reverse Battery protection
- Load switch
- Power management
- Motor Control
- Portable Power Adaptors

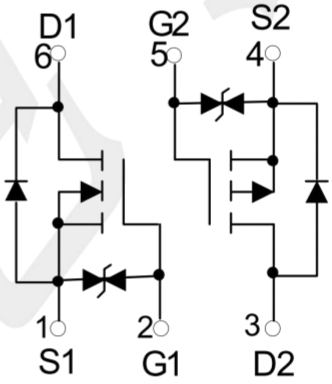
Product Summary

Device	BVDSS	RDS(ON)MAX	ID
Q1 N-Channel	20V	380mΩ@ 4.5V	0.75A
		450mΩ@2.5V	
		800mΩ@1.8V	
Q2 P-Channel	-20V	520mΩ@-4.5V	-0.66A
		700mΩ@-2.5V	
		950mΩ(TYP)@-1.8V	

Package and Pin Configuration



Circuit diagram



Absolute Maximum Ratings (@ TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Q1 N-CHANNEL	Q2 P-CHANNEL	Unit
Drain-Source Voltage	VDSS	20	-20	V
Gate-Source Voltage	V_{GSS}	±12	±12	V
Continuous Drain Current	I_D	0.75	-0.66	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)	IDM	1.8	-1.8	A
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	833		℃/W
Junction Temperature	T_J	150		℃
Storage Temperature	T_{STG}	-55~+150		℃
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	T_L	260		℃

Notes: 1. Device mounted on 1" × 1" FR-4 PCB with high coverage 2oz. Copper, single sided.

Electrical Characteristics Q1 N-CHANNEL

(@ TA = +25°C, unless otherwise specified.)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS (Note 2)						
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	BVDSS	20	--	--	V
Zero Gate Voltage Drain Current TJ = +25°C	V_{DS}=20V,V_{GS}= 0V	I_{DSS}	--	--	1	μA
Gate-Source Leakage	V_{DS}=0V, V_{GS}= ±10V	I_{GSS}	--	--	±20	μA
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	V_{DS} = V_{GS}, ID = 250μA	$V_{GS(TH)}$	0.35	--	1.1	V
Static Drain-Source On-Resistance	V_{GS}=4.5V,I_D=0.65A	R_{DS}(on)	--	--	380	mΩ
	V_{GS}=2.5V,I_D=0.55A		--	--	450	
	V_{GS}=1.8V,I_D=0.45A		--	--	800	
Diode Forward Voltage	V_{GS} = 0V, IS = 5A	VSD	--	0.7	1.2	V
Forward tranconductance(note 2)	V_{DS}=10V, I_D=0.8A	gFS	--	1.6	--	S
DYNAMIC CHARACTERISTICS (Note 3)						
Input Capacitance	V_{DS} = 16V, V_{GS} = 0V, f = 1.0MHz	Ciss	--	79	120	pF
Output Capacitance		Coss	--	13	20	
Reverse Transfer Capacitance		Crss	--	9	15	
Turn-On Delay Time	VDD = 10V, VGS = 4.5V, I_D=0.5A, RG = 10Ω	$t_{D(ON)}$	--	6.7	--	nS
Turn-On Delay Time		t_R	--	4.8	--	
Turn-Off Delay Time		$t_{D(OFF)}$	--	17.3	--	
Turn-Off Fall Time		t_F	--	7.4	--	

Notes: 2. Short duration pulse test used to minimize self-heating effect.

3. Guaranteed by design. Not subject to product testing.

Electrical Characteristics Q2 P-CHANNEL

(@ TA = +25°C, unless otherwise specified.)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS (Note 2)						
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	BVDSS	-20	--	--	V
Zero Gate Voltage Drain Current TJ = +25°C	V_{DS}=-20V ,V_{GS}= 0V	I_{DSS}	--	--	-1	μA
Gate-Source Leakage	V_{DS}=0V, V_{GS}= ±10V	I_{GSS}	--	--	±20	μA
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	V_{DS} = V_{GS}, ID =- 250μA	$V_{GS(TH)}$	-0.35	--	-1.1	V
Static Drain-Source On-Resistance	V_{GS}=-4.5V,I_D=-1A	R_{DS}(on)	--	270	520	mΩ
	V_{GS}=-2.5V,I_D=-0.8A		--	320	700	
	V_{GS}=-1.8V,I_D=-0.5A		--	950	--	
Diode Forward Voltage	V_{GS} = 0V, IS = -5A	VSD	--	-0.7	-1.2	V
Forward tranconductance(note 2)	V_{DS}=10V, I_D=-0.54A	gFS	--	1.2	--	S
DYNAMIC CHARACTERISTICS (Note 3)						
Input Capacitance	V_{DS} = -16V, V_{GS} = 0V, f = 1.0MHz	Ciss	--	113	170	pF
Output Capacitance		Coss	--	15	25	
Reverse Transfer Capacitance		Crss	--	9	15	
Turn-On Delay Time	VDD = -10V, VGS = -4.5V, I_D=-0.2A, RG = 10Ω	$t_{D(ON)}$	--	9	--	nS
Turn-On Delay Time		t_R	--	5.8	--	
Turn-Off Delay Time		$t_{D(OFF)}$	--	32.7	--	
Turn-Off Fall Time		t_F	--	20.3	--	

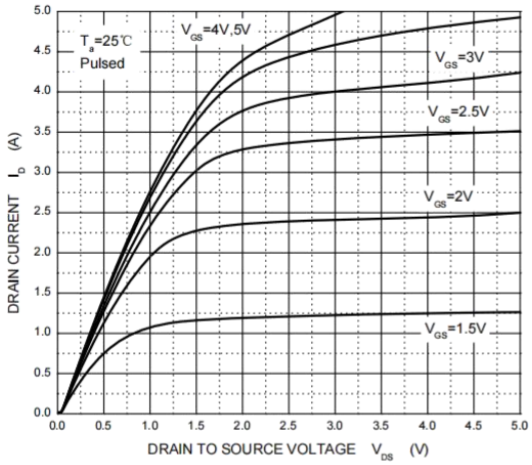
Notes: 2. Short duration pulse test used to minimize self-heating effect.

3. Guaranteed by design. Not subject to product testing.

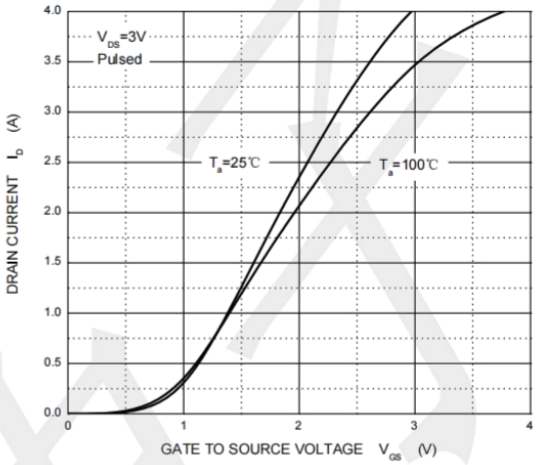
Typical Performance Characteristics(TA=25°C unless otherwise Specified)

Q1 N-CHANNEL

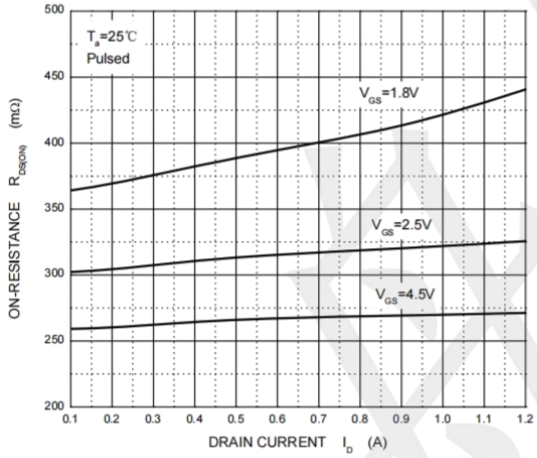
Output Characteristics



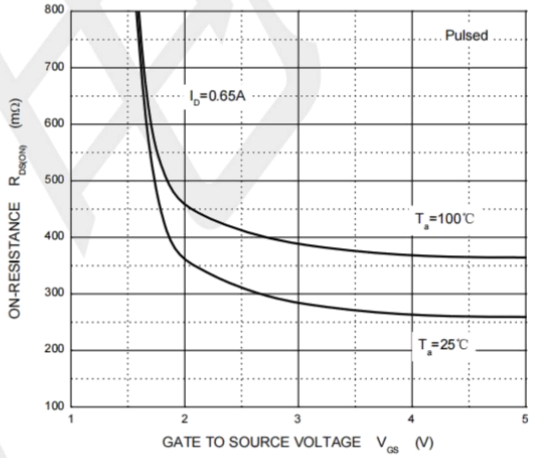
Transfer Characteristics



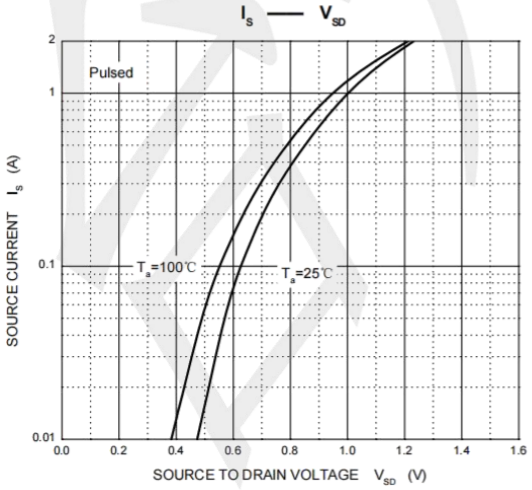
$R_{DS(ON)}$ — I_D



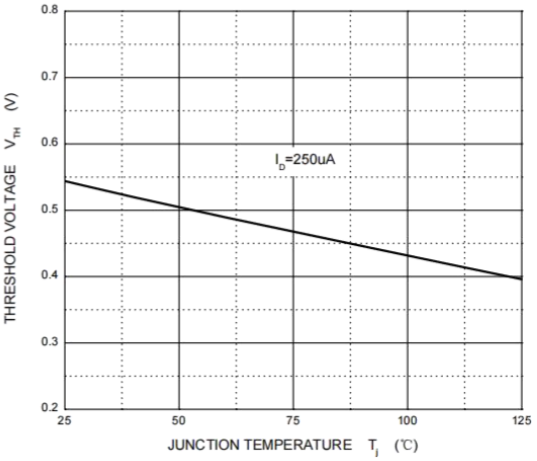
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



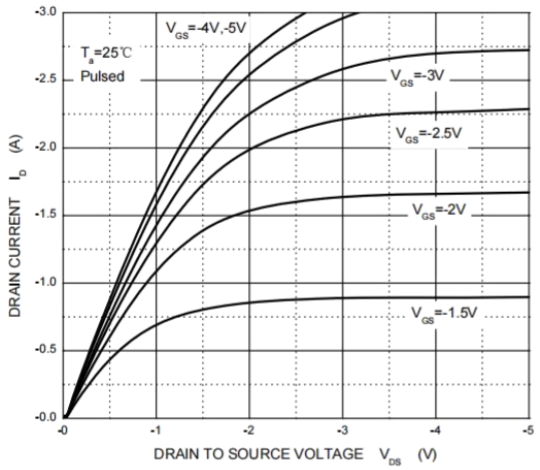
Threshold Voltage



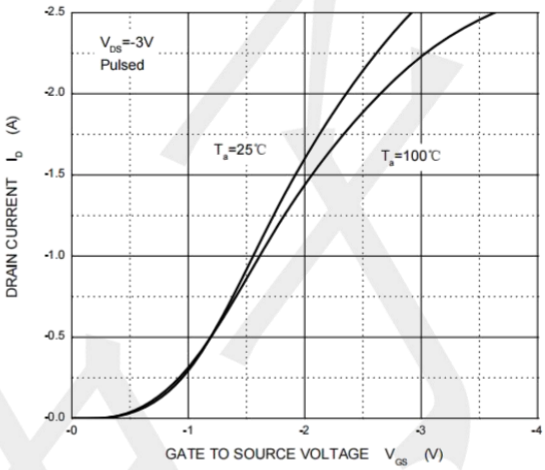
Typical Performance Characteristics(TA=25°C unless otherwise Specified)

Q2 P-CHANNEL

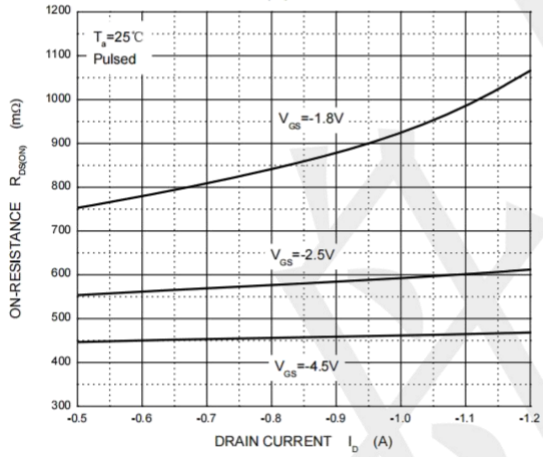
Output Characteristics



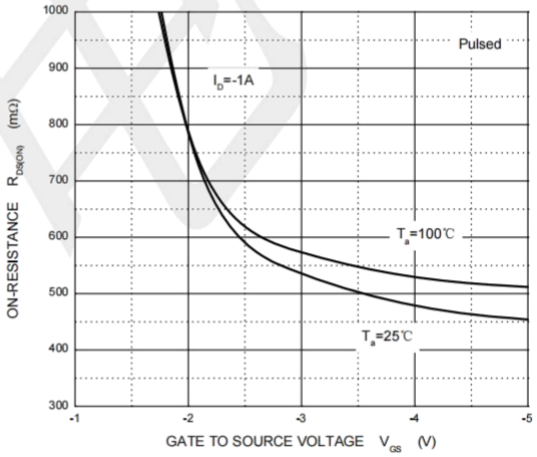
Transfer Characteristics



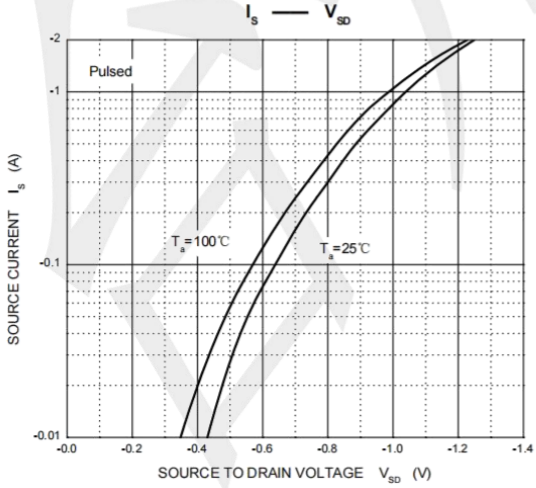
$R_{DS(ON)}$ — I_D



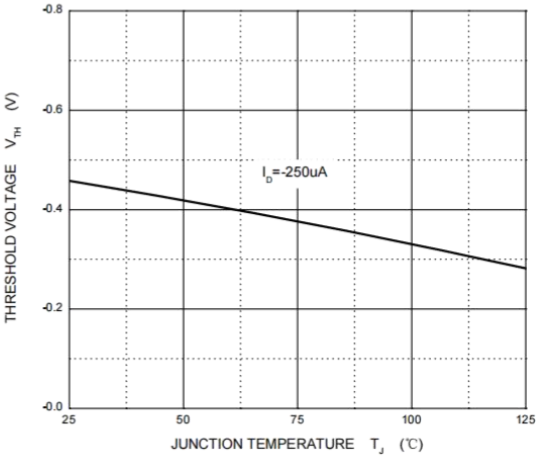
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

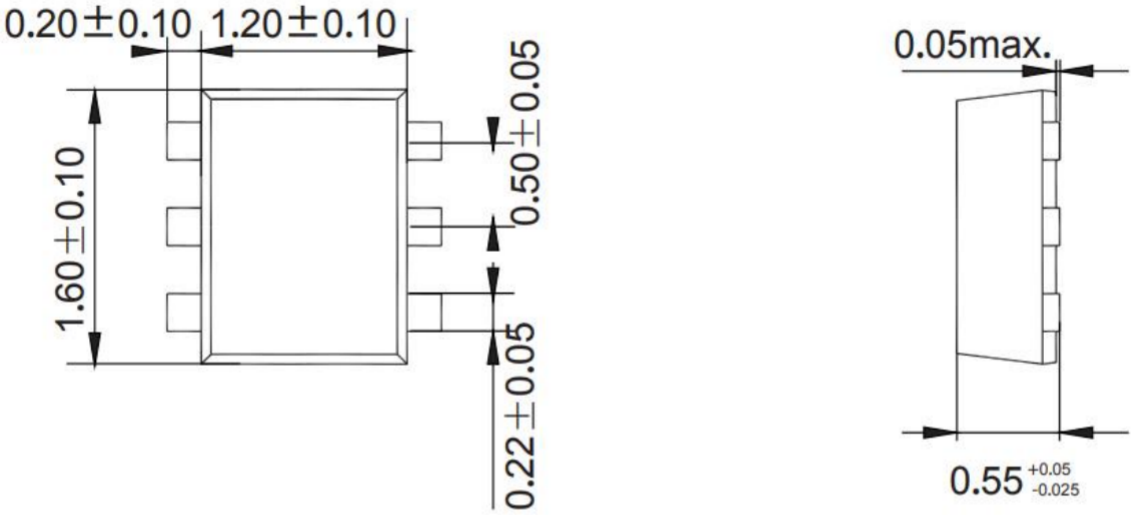


Threshold Voltage



Package Outline Dimensions (unit: mm)

SOT-563



Mounting Pad Layout (unit: mm)