

Features

- Low RDS(on)
- Operated at Low Logic Level Gate Drive
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 833 °C/W Junction to Ambient (Note 2)

N-Channel MOSFET

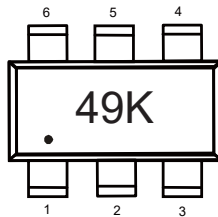
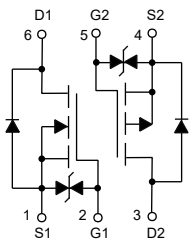
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±12	V
Drain Current-Continuous	I _D	0.75	A
Power Dissipation	P _D	1.8	W

P-Channel MOSFET

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	V
Drain Current-Continuous	I _D	-0.66	A
Power Dissipation	P _D	1.2	W

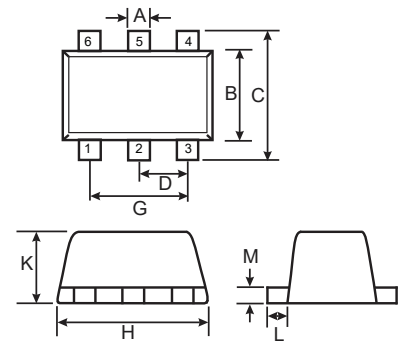
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Surface mounted on FR4 board using the minimum recommended pad size.

Internal Structure and Marking Code



**Dual
N&P-Channel
MOSFET**

SOT-563



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.006	0.011	0.15	0.30	
B	0.043	0.051	1.10	1.30	
C	0.059	0.067	1.50	1.70	
D	0.020		0.50		TYP.
G	0.035	0.043	0.90	1.10	
H	0.059	0.067	1.50	1.70	
K	0.022	0.026	0.55	0.65	
L	0.004	0.011	0.10	0.30	
M	0.004	0.007	0.10	0.18	

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)
N-Channel MOSFET

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 20	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage ^(Note 3)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.35		1.0	V
Drain-Source On-Resistance ^(Note 3)	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.65A$			0.38	Ω
		$V_{GS}=2.5V, I_D=0.55A$			0.45	Ω
		$V_{GS}=1.8V, I_D=0.45A$			0.80	Ω
Forward Transconductance ^(Note 3)	g_{FS}	$V_{DS}=10V, I_D=0.8A$		1.6		S
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=0.15A$			1.2	V
Dynamic Characteristics^(Note 5)						
Input Capacitance	C_{iss}	$V_{DS}=16V, V_{GS}=0V, f=1MHz$		79	120	pF
Output Capacitance	C_{oss}			13	20	pF
Reverse Transfer Capacitance	C_{rss}			9	15	pF
Switching Characteristics^(Note 4,5)						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=4.5V, V_{DS}=10V, I_D=500mA, R_{GEN}=10\Omega$		6.7		ns
Turn-Off Delay Time	$t_{d(off)}$			17.3		ns
Turn-on Rise Time	t_r			4.8		ns
Turn-off Fall Time	t_f			7.4		ns

Note:

3. Pulse Test : Pulse width=300 μ s, duty cycle \leq 2%.
4. Switching characteristics are independent of operating junction temperature.
5. Guaranteed by design, not subject to producing.

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)
P-Channel MOSFET

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	-20			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 20	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Gate-Threshold Voltage ^(Note 3)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	-0.35		-1.1	V
Drain-Source On-Resistance ^(Note 3)	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1.0A$			0.52	Ω
		$V_{GS}=-2.5V, I_D=-0.8A$			0.70	Ω
		$V_{GS}=-1.8V, I_D=-0.5A$		0.95		Ω
Forward Transconductance ^(Note 3)	g_{FS}	$V_{DS}=-10V, I_D=-0.54A$		1.2		S
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-0.5A$			-1.2	V
Dynamic Characteristics^(Note 5)						
Input Capacitance	C_{iss}	$V_{DS}=-16V, V_{GS}=0V, f=1MHz$		113	170	pF
Output Capacitance	C_{oss}			15	25	pF
Reverse Transfer Capacitance	C_{rss}			9	15	pF
Switching Characteristics^(Note 4,5)						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-4.5V, V_{DS}=-10V, I_D=-200mA, R_{GEN}=10\Omega$		9.0		ns
Turn-Off Delay Time	$t_{d(off)}$			32.7		ns
Turn-on Rise Time	t_r			5.8		ns
Turn-off Fall Time	t_f			20.3		ns

Note:

3. Pulse Test : Pulse width=300 μs , duty cycle $\leq 2\%$.
4. Switching characteristics are independent of operating junction temperature.
5. Granted by design, not subject to producing.

Curve Characteristics(N-Channel MOSFET)

Fig. 1 - Output Characteristics

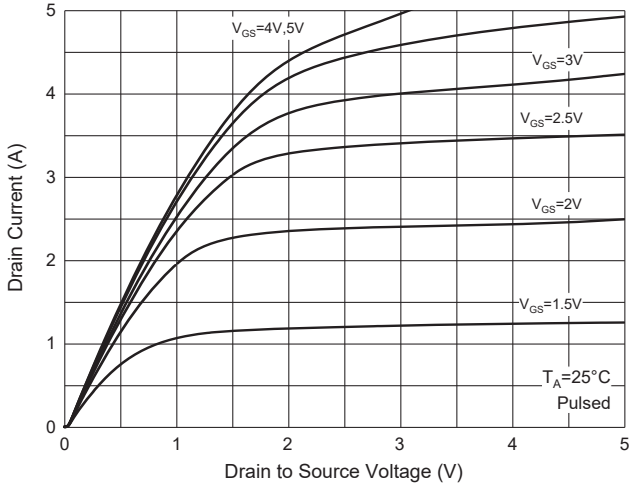


Fig. 2 - Transfer Characteristics

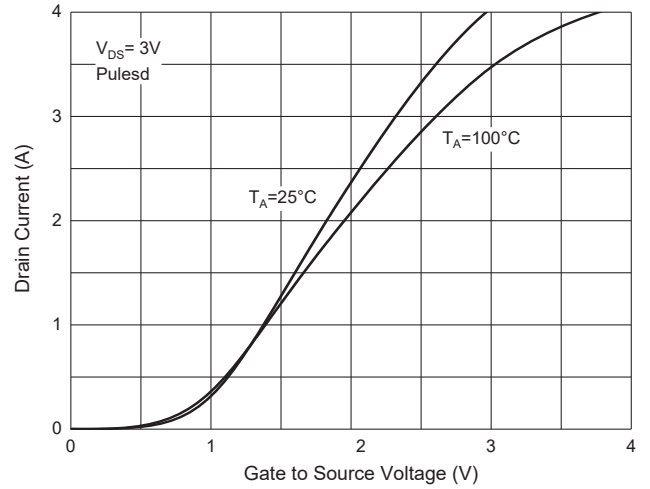


Fig. 3 - $R_{DS(ON)} - I_D$

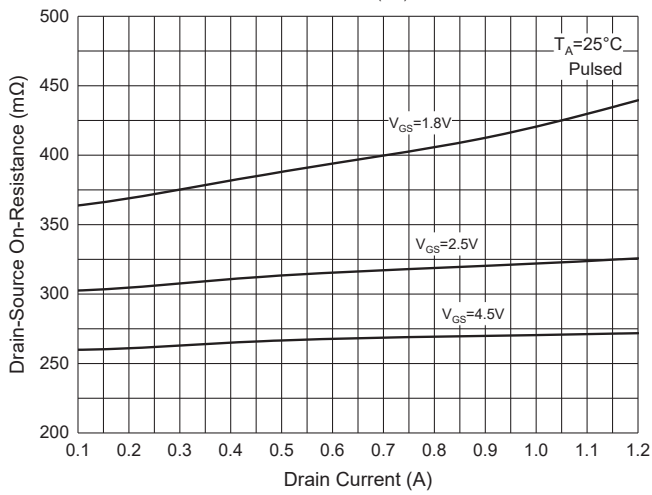


Fig. 4 - $R_{DS(ON)} - V_{GS}$

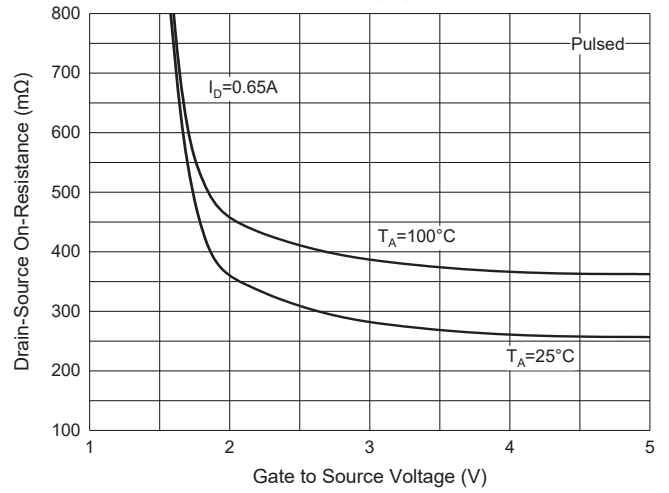


Fig. 5 - $I_S - V_{SD}$

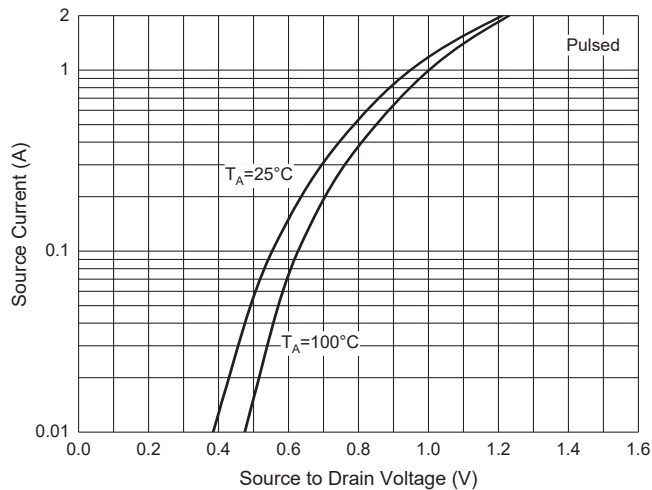
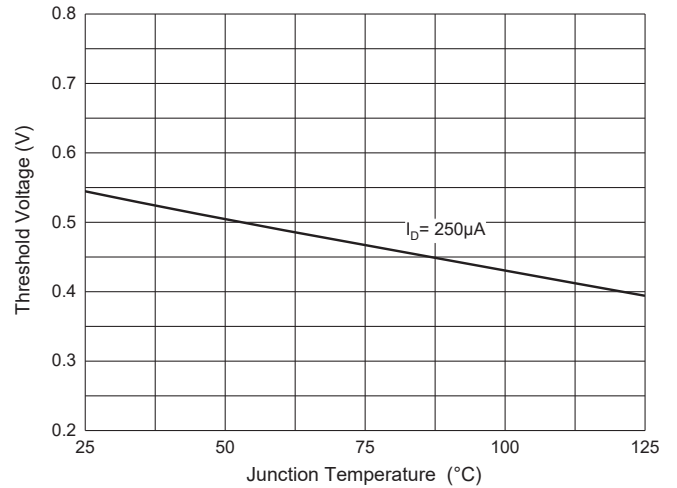


Fig. 6 - Threshold Voltage



Curve Characteristics(P-Channel MOSFET)

Fig. 1 - Output Characteristics

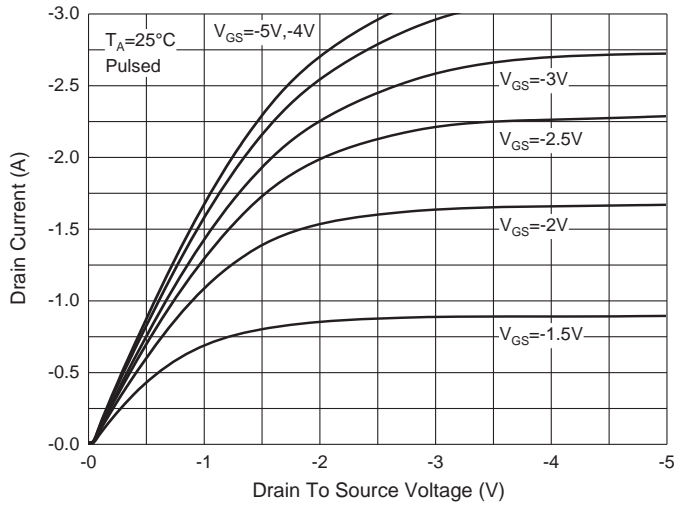


Fig. 2 - Transfer Characteristics

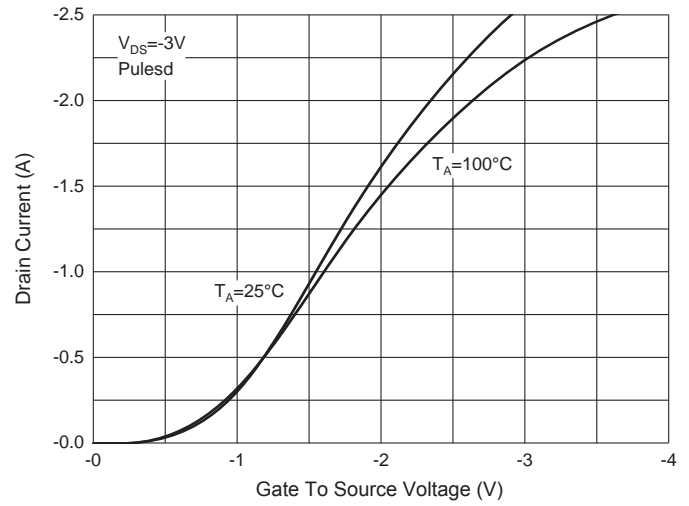


Fig. 3 - $R_{DS(ON)} - I_D$

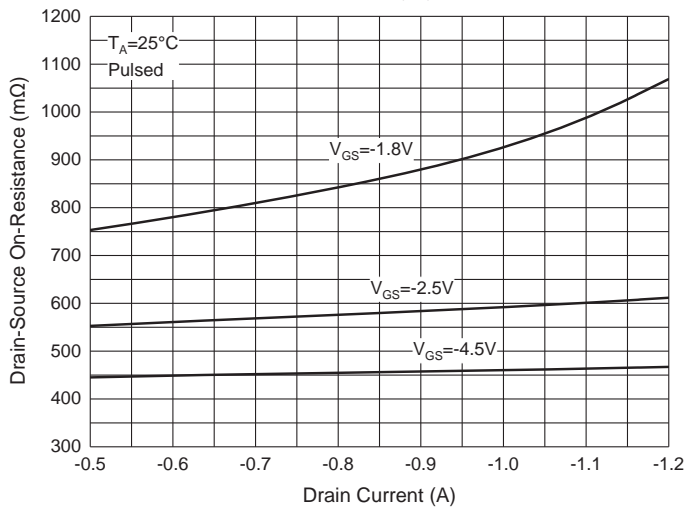


Fig. 4 - $R_{DS(ON)} - V_{GS}$

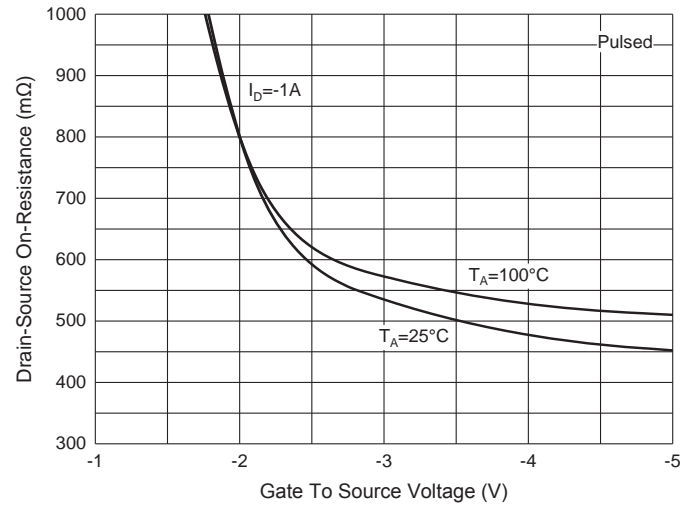


Fig. 5 - $I_S - V_{SD}$

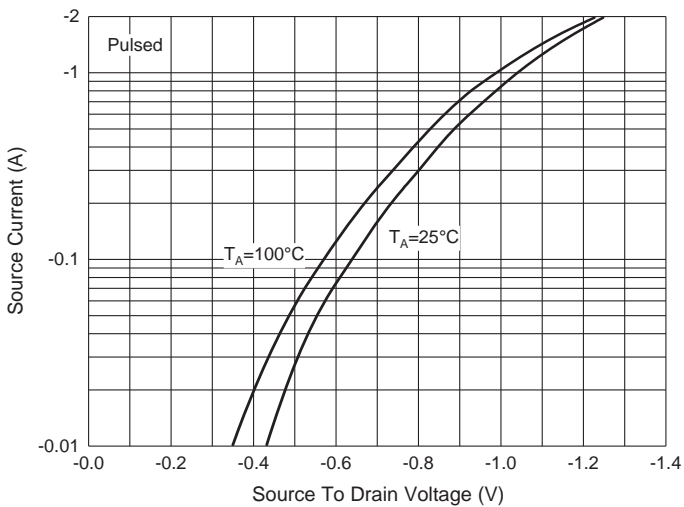
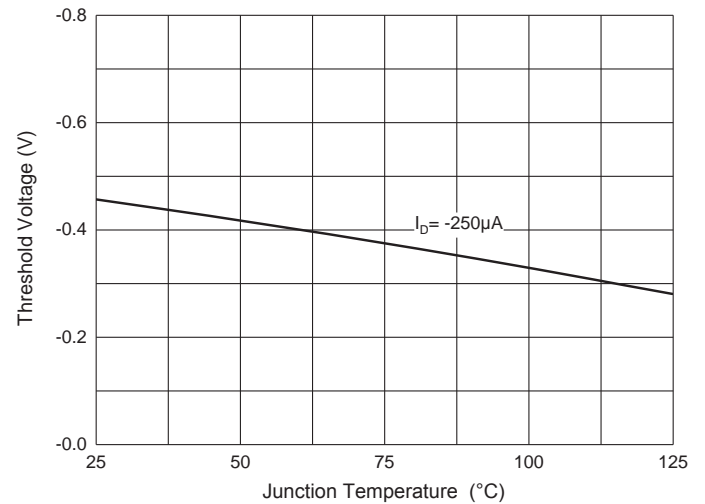


Fig. 6 - Threshold Voltage



Ordering Information

Device	Packing
SIX3439K-TP	Tape&Reel:3Kpcs/Reel
SIX3439K-TPA	Tape&Reel:8Kpcs/Reel ^(Note 6)

Note:

6. Change the pitch from 4mm to 2mm in tape&reel.

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