Micro Commercial Components

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SIL2308

Dual N&P-Channel MOSFET

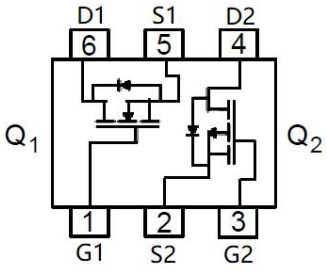
Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Low Input/Output Leakage
- Marking Code: 2038

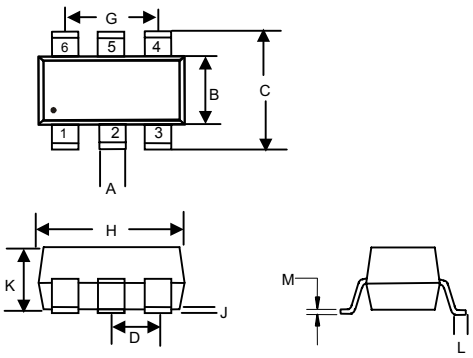
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter		Rating	Unit
V_{DS}	Drain-source Voltage	N-Channel P-Channel	20 -20	V
I_D	Drain Current-Continuous	N-Channel P-Channel	5 -4	A
V_{GS}	Gate-source Voltage	N-Channel P-Channel	±8 ±12	V
$R_{\theta JA}$	Thermal Resistance Junction to Ambient		277	℃/W
T_J	Operating Junction Temperature		-55 to +150	℃
T_{STG}	Storage Temperature		-55 to +150	℃

Equivalent Circuit



SOT23-6L



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.012	.020	0.30	0.50	
B	.051	.070	1.30	1.80	
C	.087	.126	2.20	3.20	
D	.037		0.95BSC		
G	.074		1.90BSC		
H	.106	.122	2.70	3.10	
J	.002	.006	0.05	0.15	
K	.035	.051	0.90	1.30	
L	.012	.024	0.30	0.60	
M	.003	.008	0.08	0.22	

Electrical characteristics - N-Channel Q1 (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static 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} =±12V, V_{DS} = 0V			±0.1	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.5	0.7	1	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =4.5V, I_D =4.5A			38	mΩ
		V_{GS} =2.5V, I_D =3.5A			45	
Forward transconductance	g_{FS}	V_{DS} =5V, I_D =7A	9			S
Diode forward voltage	V_{SD}	I_S=1.7A,V_{GS}=0V		0.7	1.3	V
Dynamic characteristics						
Total gate charge	Q_g	V_{DS} =10V,V_{GS} =4.5V,I_D =4A		11		nC
Gate-source charge	Q_{gs}			2.3		
Gate-drain charge	Q_{gd}			2.5		
Input Capacitance	C_{iss}	V_{DS}=8V,V_{GS}=0V,f=1MHz		800		pF
Output Capacitance	C_{oss}			155		
Reverse Transfer Capacitance	C_{rss}			125		
Switching Characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V , V_{GS}=4V , I_D=1A R_G=10Ω		18		ns
Turn-on rise time	t_r			5		
Turn-off delay time	$t_{d(off)}$			43		
Turn-off fall time	t_f			20		

Notes : 1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.

2. Guaranteed by design, not subject to production testing.

Electrical characteristics - P-Channel Q2 (T_A=25 °C, unless otherwise noted)

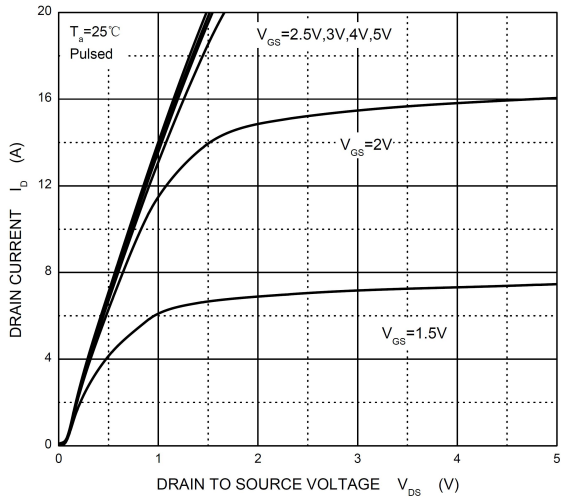
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-16V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =VGS, I_D = -250μA	-0.5	-0.7	-1	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -0.5A		70	90	mΩ
		V_{GS} = -2.5V, I_D = - 0.5A		90	110	
Forward transconductance	g_{FS}	V_{DS} =-5V, I_D = -2A	5			S
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS}=-10V,V_{GS}=0V,f=1MHz		405		pF
Output Capacitance	C_{oss}			75		
Reverse Transfer Capacitance	C_{rss}			55		
Gate resistance	R_g	f =1MHz		6		Ω
Total Gate Charge	Q_g	V_{DS} =-10V,V_{GS} =-2.5V,ID=-3A		3.3	12	nC
Gate-Source Charge	Q_{gs}			0.7		
Gate-Drain Charge	Q_{gd}			1.3		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-10V,V_{GEN}=-4.5V,I_D=-1A R_L=10Ω,R_{GEN}=1Ω		11		ns
Turn-on rise time	t_r			35		
Turn-off delay time	$t_{d(off)}$			30		
Turn-off fall time	t_f			10		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{DS}	V_{GS} =0V, I_S=-1.25A		-0.7	-1.3	V

Notes : 1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.

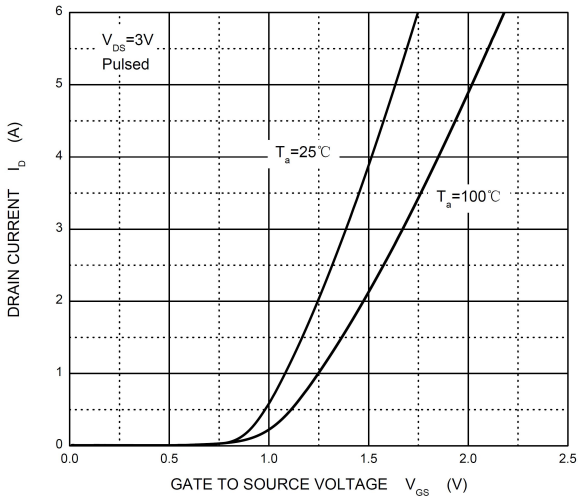
2. Guaranteed by design, not subject to production testing.

Typical Characteristics - N-Channel Q1

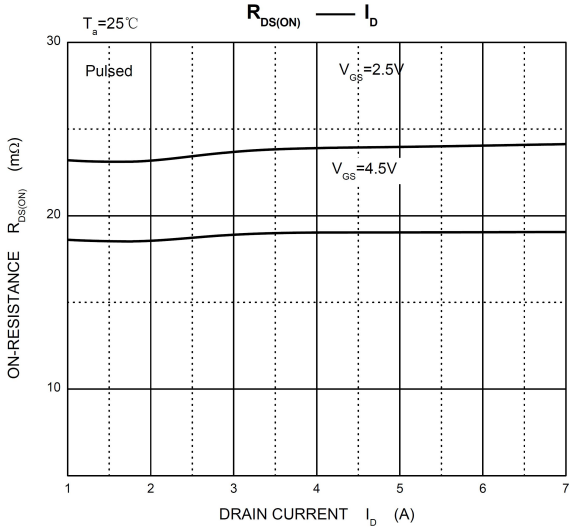
Output Characteristics



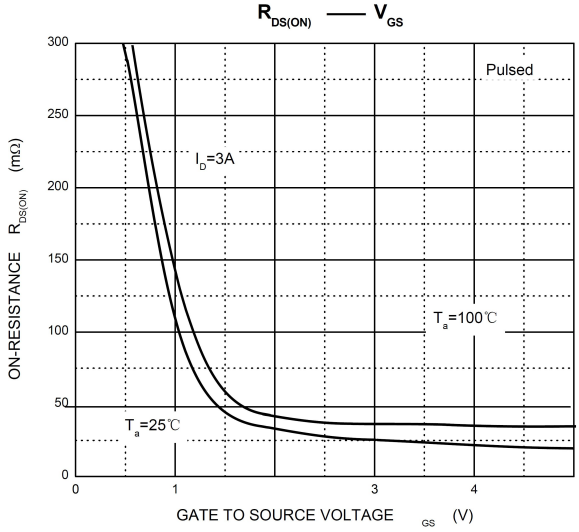
Transfer Characteristics



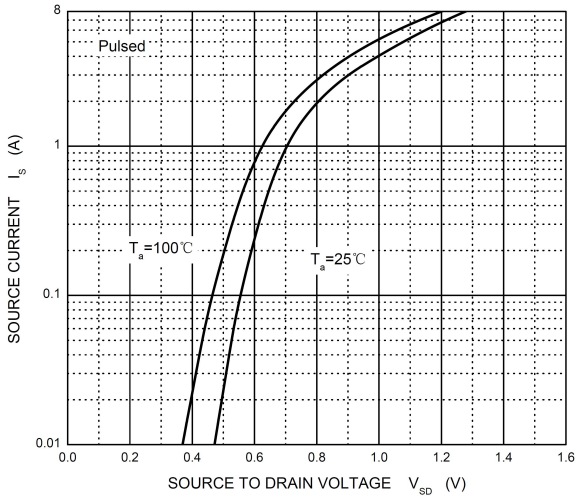
RDS(ON) — ID



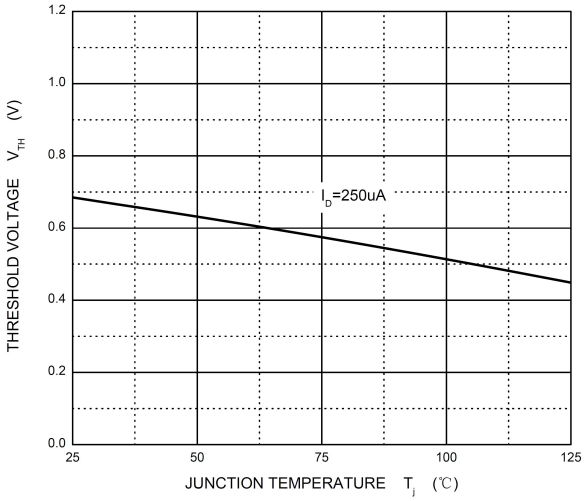
RDS(ON) — VGS



IS — VSD

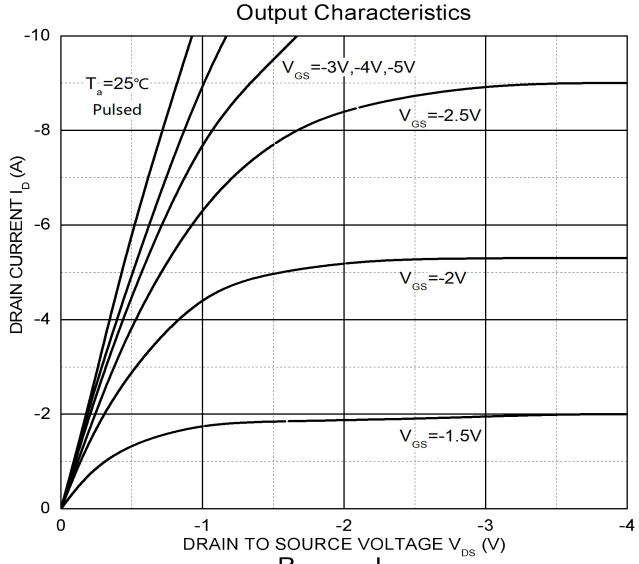


Threshold Voltage

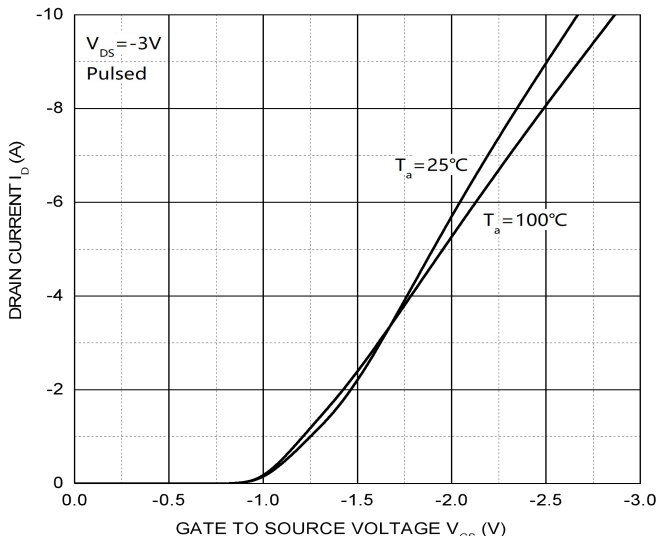


Typical Characteristics - P-Channel Q2

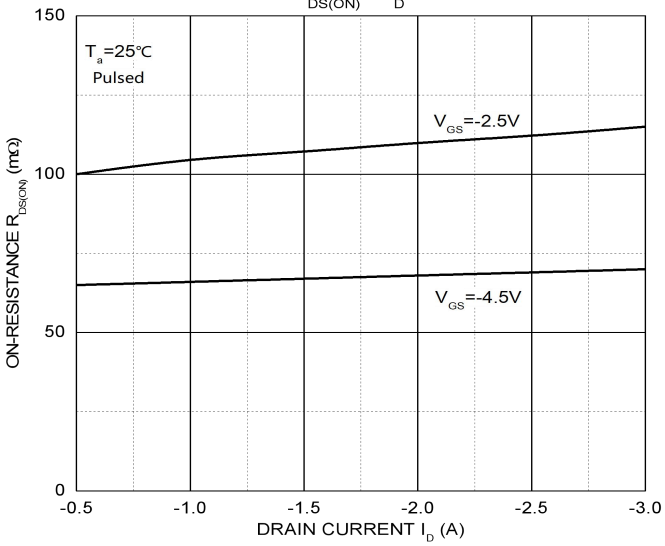
Output Characteristics



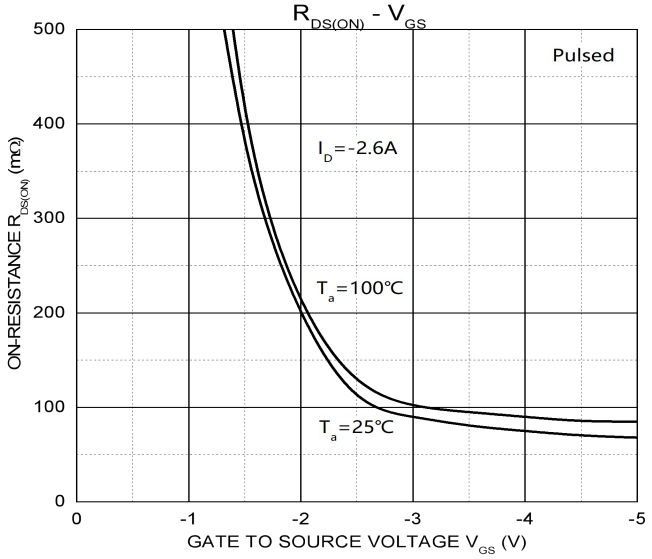
Transfer Characteristics



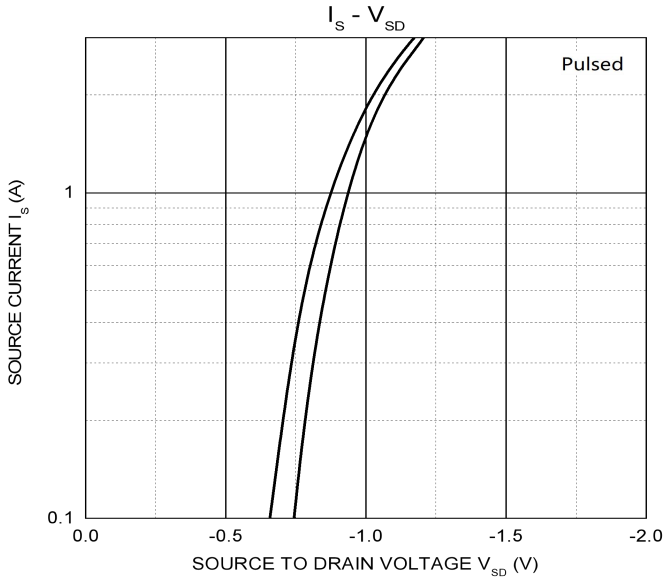
$R_{DS(ON)}$ – I_D



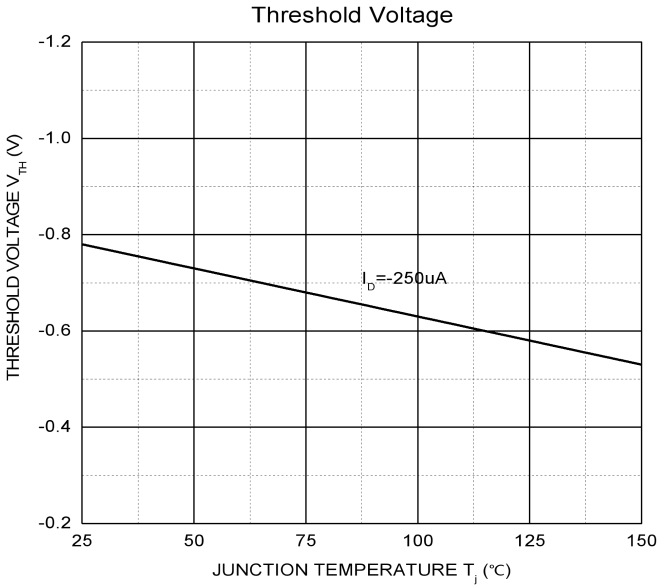
$R_{DS(ON)}$ - V_{GS}



I_S - V_{SD}



Threshold Voltage



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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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