



Micro Commercial Components



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 20736 Marilla Street Chatsworth
 CA 91311
 Phone: (818) 701-4933
 Fax: (818) 701-4939

SIL2308

Dual N&P-Channel MOSFET

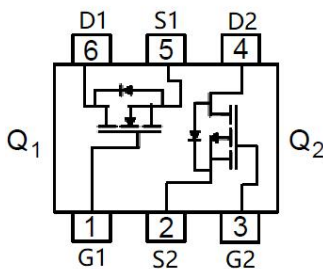
Features

- 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

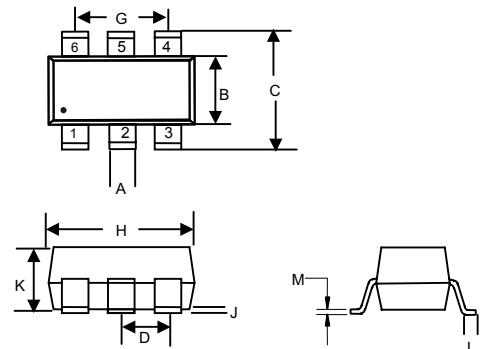
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V _{DS}	Drain-source Voltage	N-Channel	20
		P-Channel	-20
I _D	Drain Current-Continuous	N-Channel	5
		P-Channel	-4
V _{GS}	Gate-source Voltage	N-Channel	±8
		P-Channel	±12
R _{θJA}	Thermal Resistance Junction to Ambient	277	°C/W
T _J	Operating Junction Temperature	-55 to +150	°C
T _{STG}	Storage Temperature	-55 to +150	°C

Equivalent Circuit



SOT23-6L



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
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		

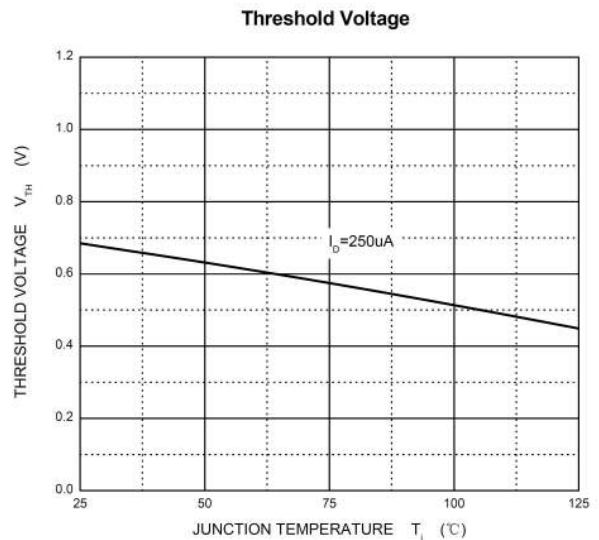
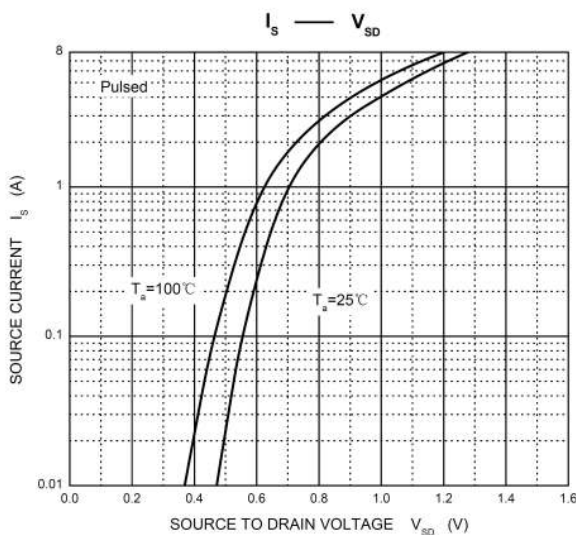
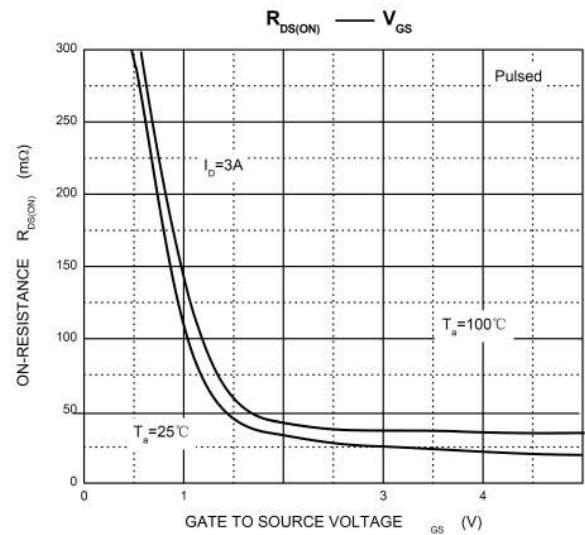
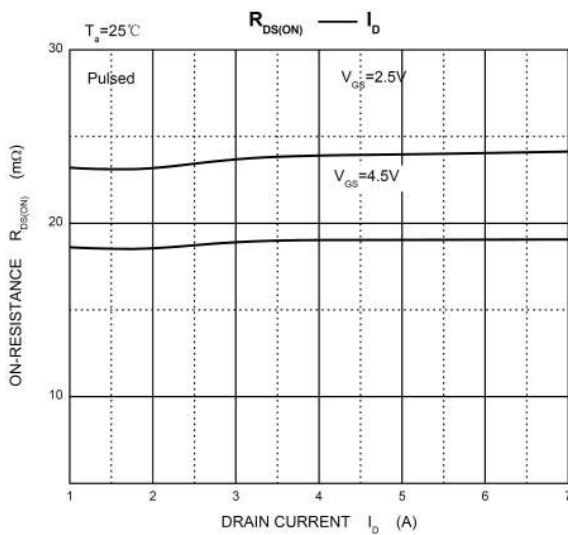
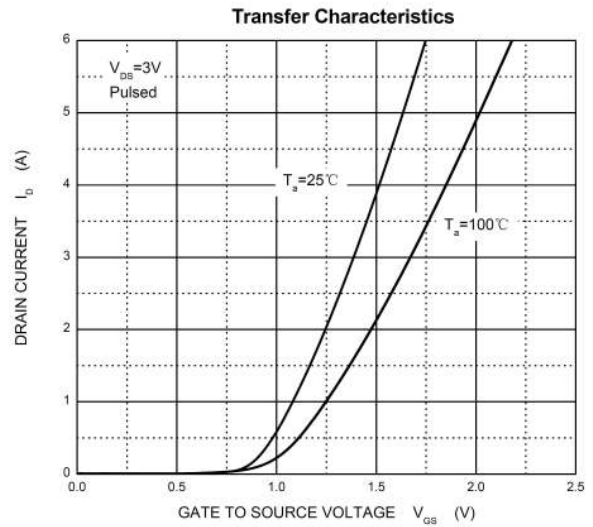
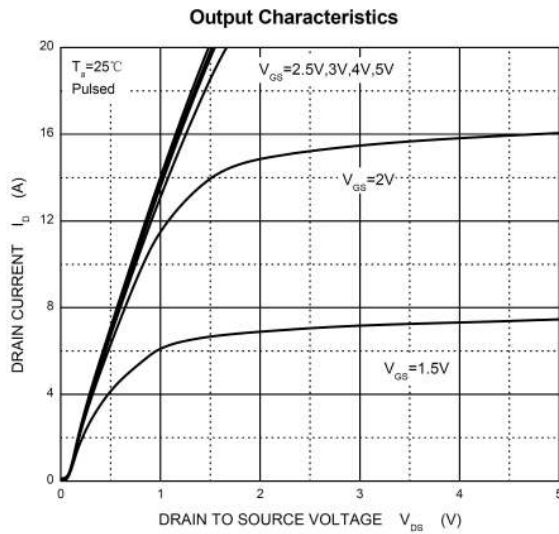
- Notes :**
1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.
 2. Guaranteed by design, not subject to production testing.

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

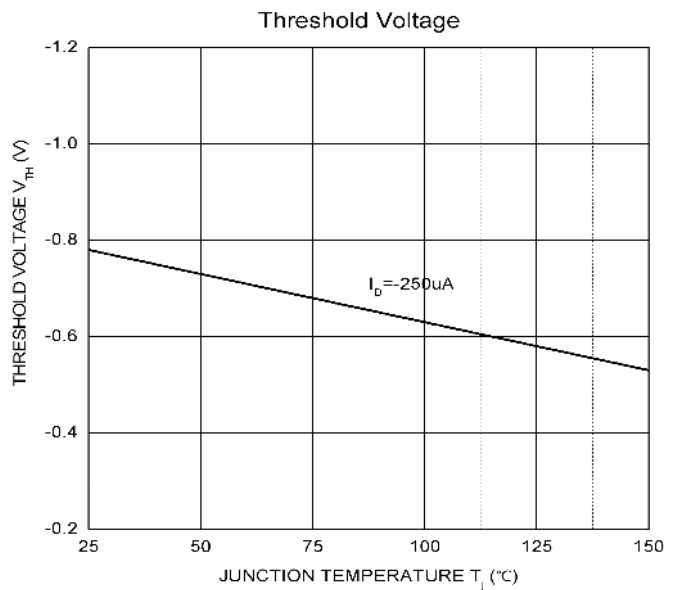
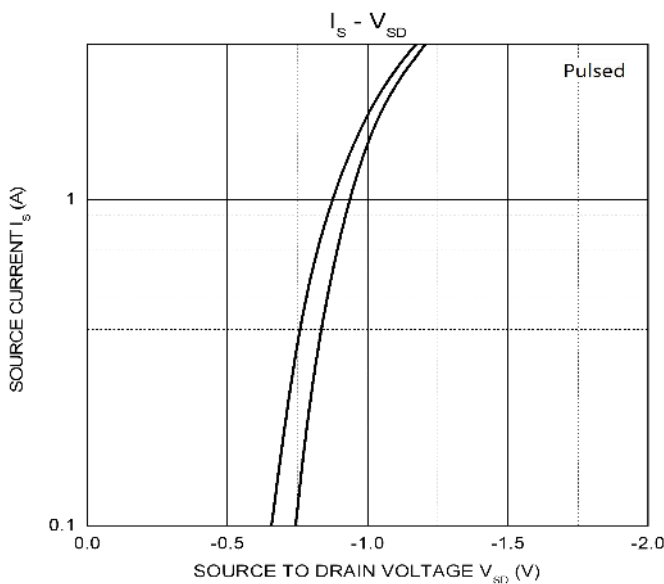
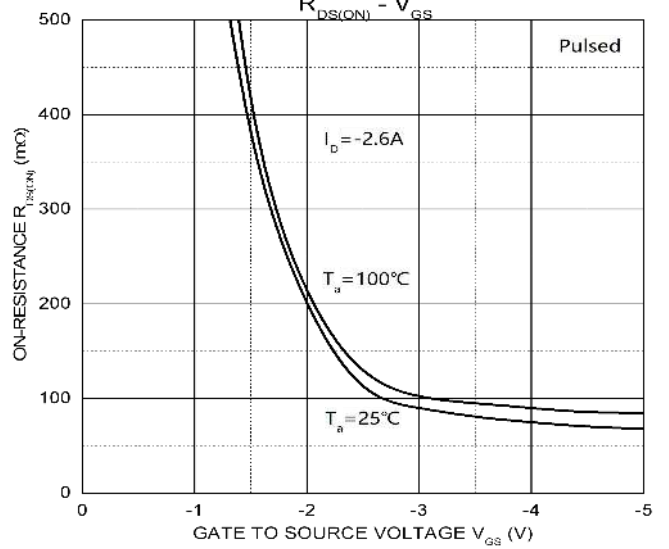
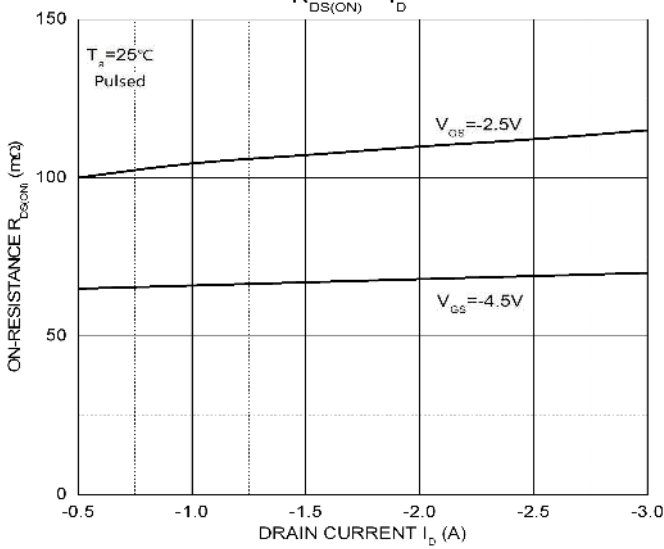
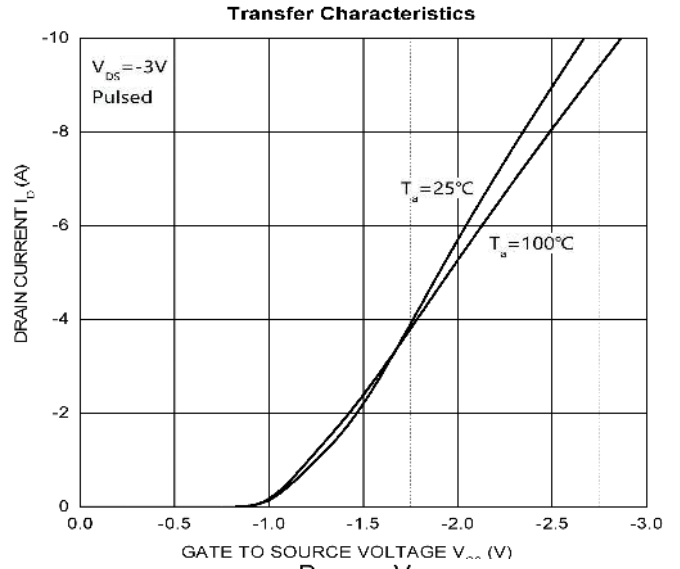
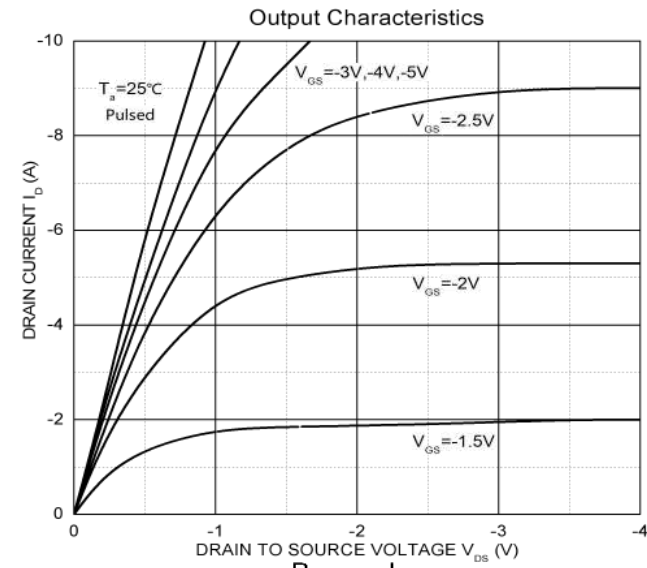
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , 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, I _D = -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



Typical Characteristics - P-Channel Q2





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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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