

### Features

- High Density Cell Design For Low  $R_{DS(ON)}$
- Exceptional On-Resistance and Maximum DC Current Capability
- 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)

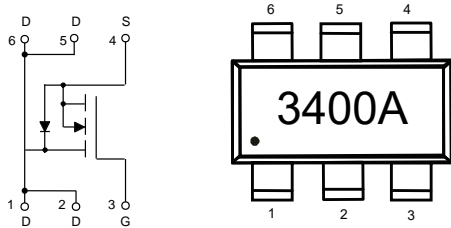
### Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 62.5°C/W Junction to Ambient<sup>(Note2)</sup>

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	5.8	A
Pulsed Drain Current <sup>(Note3)</sup>	$I_{DM}$	30	A
Total Power Dissipation	$P_D$	2	W

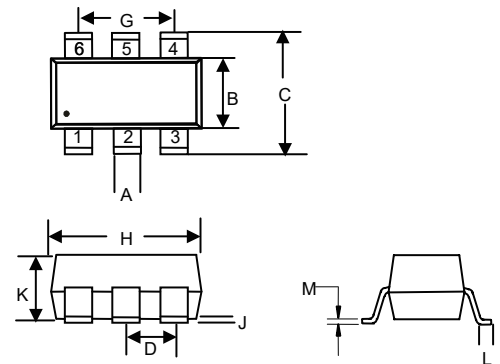
- Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.  
 2. Surface Mounted on FR4 Board,  $t < 5\text{sec}$ .  
 3. Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature.

### Internal Structure and Marking Code



## N-CHANNEL MOSFET

### SOT23-6L



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.012	0.020	0.30	0.50	
B	0.051	0.070	1.30	1.80	
C	0.087	0.126	2.20	3.20	
D	0.037		0.95		TYP.
G	0.074		1.90		TYP.
H	0.106	0.122	2.70	3.10	
J	0.002	0.006	0.05	0.15	
K	0.030	0.051	0.75	1.30	
L	0.012	0.024	0.30	0.60	
M	0.003	0.008	0.08	0.22	

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 12V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=24V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage <sup>(Note 4)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.7		1.4	V
Drain-Source On-Resistance <sup>(Note 4)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=5.8A$		29	32	m $\Omega$
		$V_{GS}=4.5V, I_D=5A$		32	38	
		$V_{GS}=2.5V, I_D=4A$		40	45	
Forward Transconductance <sup>(Note 4)</sup>	$g_{FS}$	$V_{DS}=5V, I_D=5A$	8			S
<b>Dynamic Characteristics<sup>(Note 5)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V, f=1MHz$			1155	pF
Output Capacitance	$C_{oss}$			108		
Reverse Transfer Capacitance	$C_{rss}$			84		
Gate Resistance	$R_g$	$V_{DS}=0V, V_{GS}=0V, f=1MHz$			3.6	$\Omega$
<b>Switching Characteristics<sup>(Note 5)</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS}=15V, V_{GS}=4.5V, I_D=5.6A$		4.8		nC
Gate-Source Charge	$Q_{gs}$			1.2		
Gate-Drain Charge	$Q_{gd}$			1.7		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=15V, R_L=2.7\Omega, R_{GEN}=3\Omega$			5	ns
Turn-On Rise Time	$t_r$				7	
Turn-Off Delay Time	$t_{d(off)}$				40	
Turn-Off Fall Time	$t_f$				6	
<b>Drain-Source Body Diode Characteristics</b>						
Body Diode Voltage <sup>(Note 4)</sup>	$V_{SD}$	$I_S=1A, V_{GS}=0V$			1	V

Note 4. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

5. Guaranteed by Design, Not Subject to Production Testing.

**Curve Characteristics**

Fig. 1 - Output Characteristics

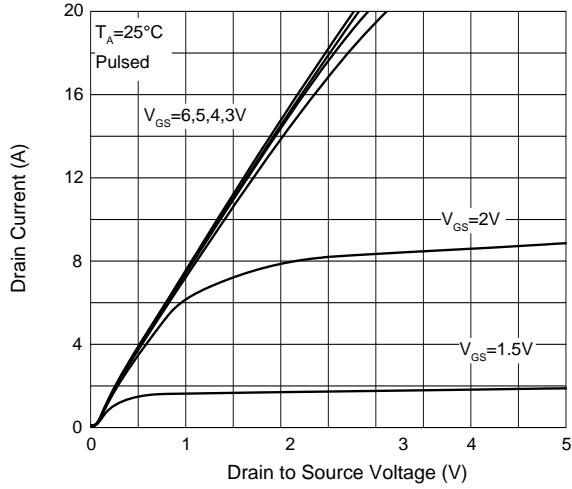


Fig. 2 - Transfer Characteristics

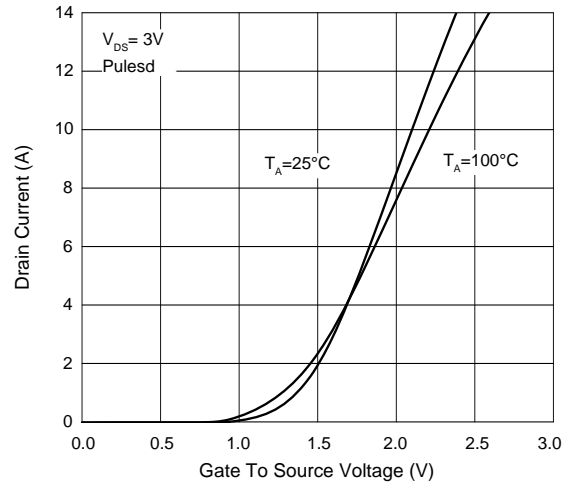


Fig. 3 -  $R_{DS(ON)} - I_D$

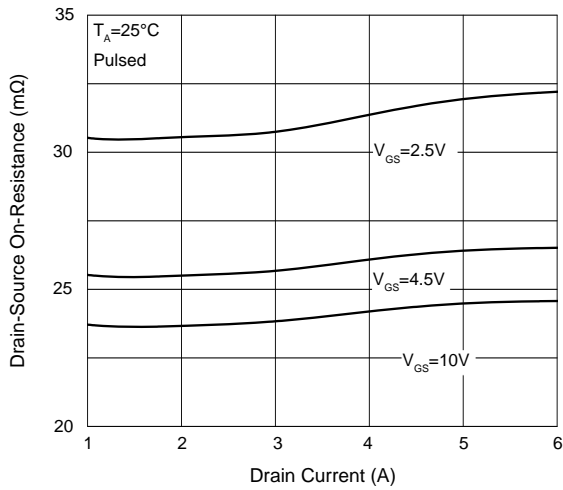


Fig. 4 -  $R_{DS(ON)} - V_{GS}$

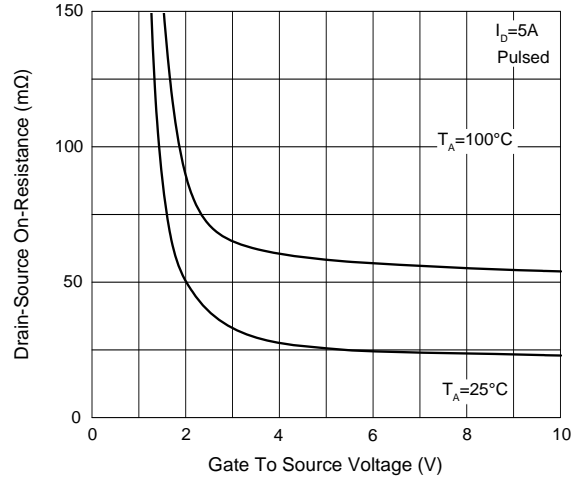


Fig. 5 -  $I_S - V_{SD}$

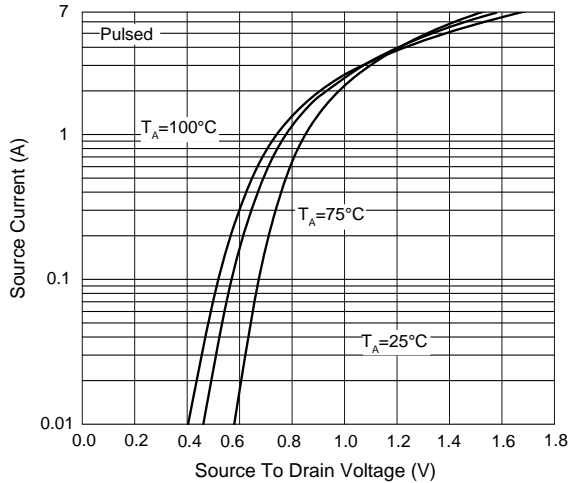
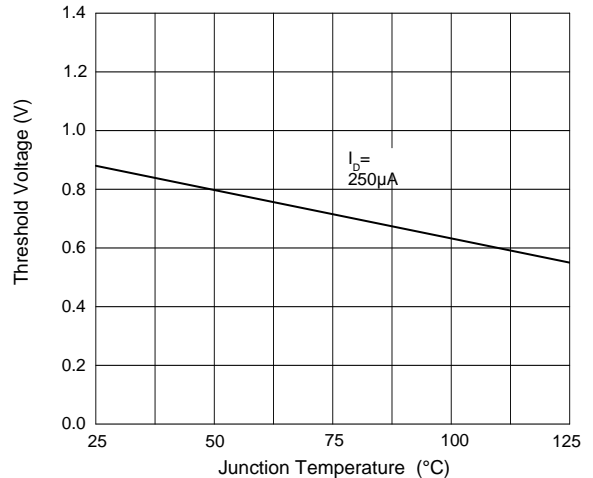


Fig. 6 - Threshold Voltage



## Ordering Information

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

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