

## FEATURES

- | High Density Cell Design For Low  $R_{DS(On)}$
- | Voltage Controlled Small Signal Switch
- | Rugged and Reliable
- | High Saturation Current Capability
- | Lead free product is acquired

## APPLICATION

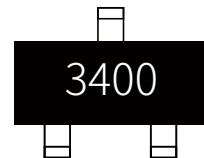
- | Direct logic-level interface: TTL/CMOS
- | Drivers: relays, solenoids, lamps
- | hammers, display, memories, etc.
- | Battery operated systems
- | Solid-state relays

## APPROVALS

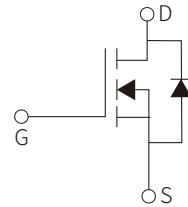
<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Drain Current-Continuous	$I_D$	5.8	A
Drain Current-Continuous	$I_D(T_a=70^\circ\text{C})$	4.9	A
Pulsed Drain Voltage	$I_{DM}$	30	A
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Total Power Dissipation	$P_D$	1.4	W
Total Power Dissipation	$P_D(T_a=70^\circ\text{C})$	1.0	W
Operating and Storage Junction Temperature	$T_J, T_{STG}$	-55 to 150	$^\circ\text{C}$



Marking



Schematic Symbol

## ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V			1	μA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			5	μA
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V			±0.1	μA
On-State Drain Current	I <sub>D(ON)</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =5V	30			A
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.65	1.1	1.45	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =5.8A		29	32	mΩ
		V <sub>GS</sub> =10V, I <sub>D</sub> =5.8A, T <sub>J</sub> =125°C			39	
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A		32	36	
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =4A		40	56	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =5A	10	15		s
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A		0.77	1	V
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, F=1.0MHz		823	1030	pF
Output Capacitance	C <sub>oss</sub>			99		
Reverse Transfer Capacitance	C <sub>rss</sub>			77		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>GS</sub> =10V, R <sub>L</sub> =2.7Ω V <sub>DS</sub> =15V, R <sub>GEN</sub> =3Ω		3.3	5	ns
Turn-On Rise Time	t <sub>r</sub>			4.8	7	
Turn-Off Delay Time	t <sub>d(off)</sub>			26.3	40	
Turn-Off Fall Time	t <sub>f</sub>			4.1	6	
Gate resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, F=1.0MHz		1.2	3.6	Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =15V, I <sub>D</sub> =5.8A		9.7	12	nC
Gate Source Charge	Q <sub>gs</sub>			1.6		
Gate Drain Charge	Q <sub>gd</sub>			3.1		

# PARAMETER CHARACTERISTIC CURVE

Figure 1

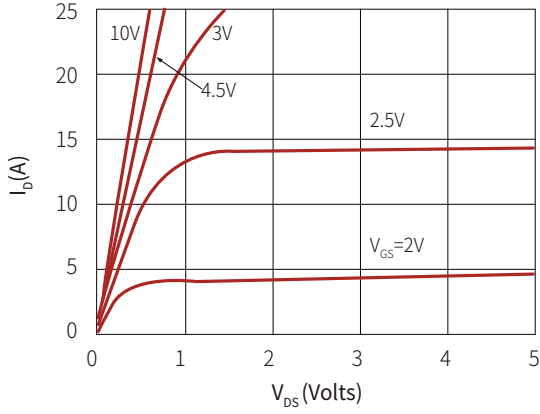


Figure 2

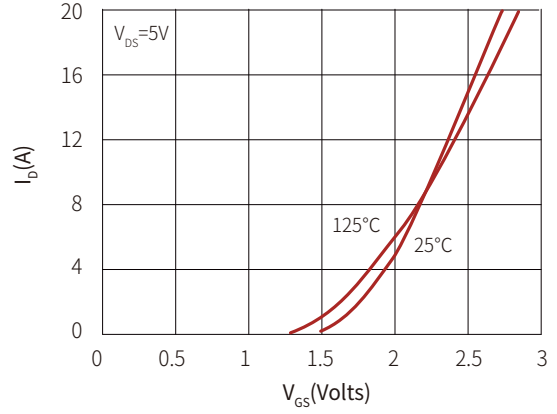


Figure 3

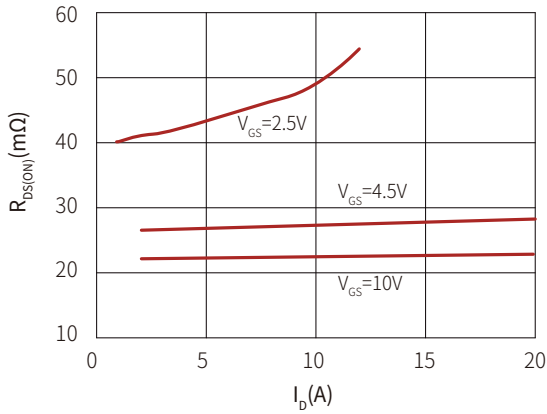


Figure 4

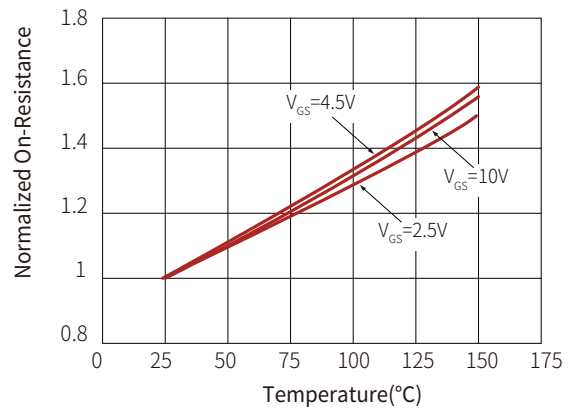


Figure 5

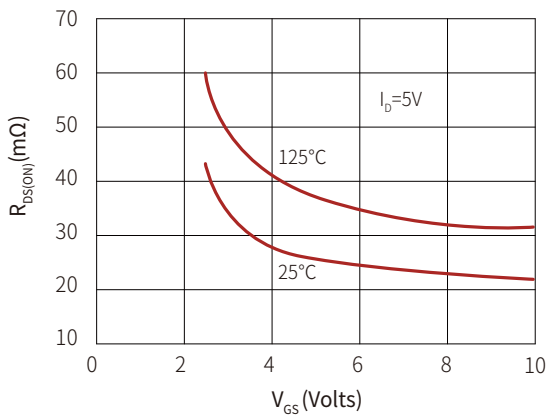
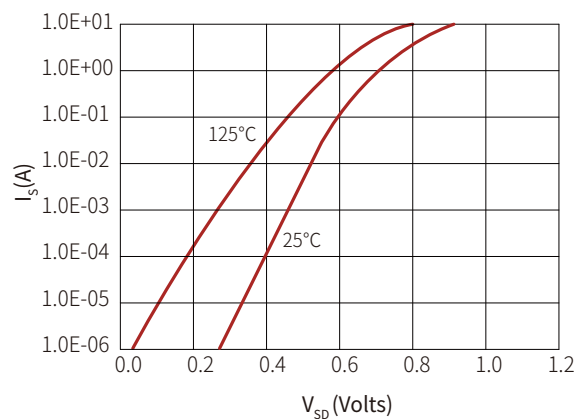
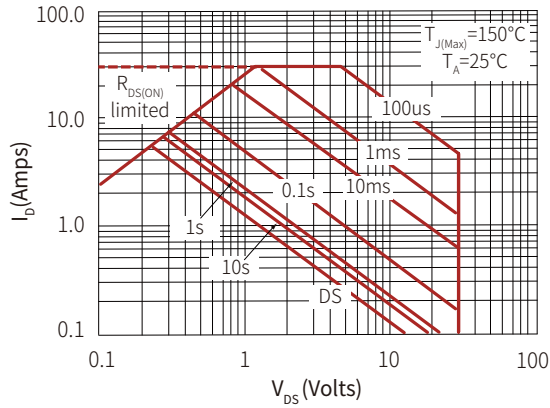
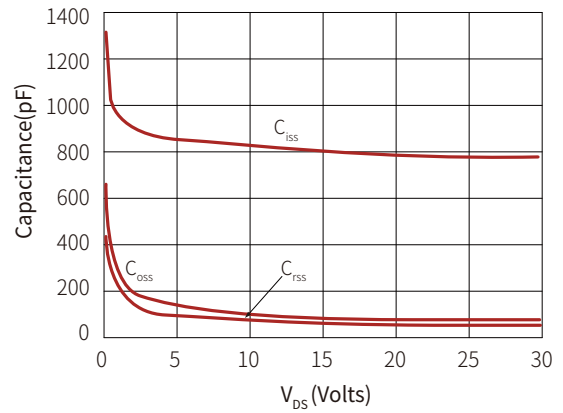


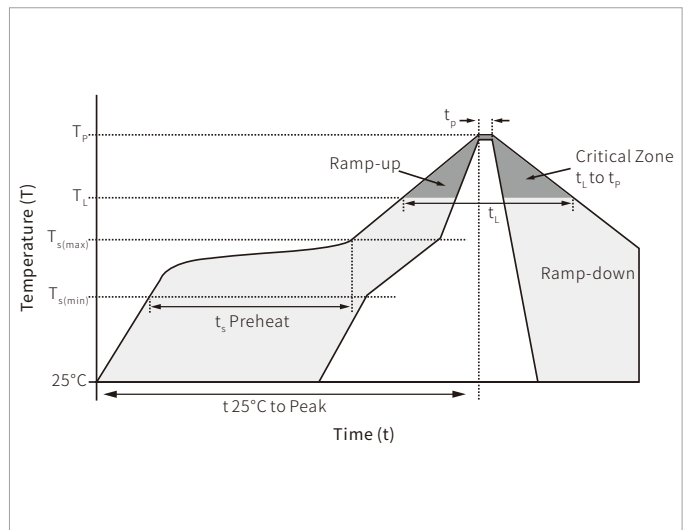
Figure 6



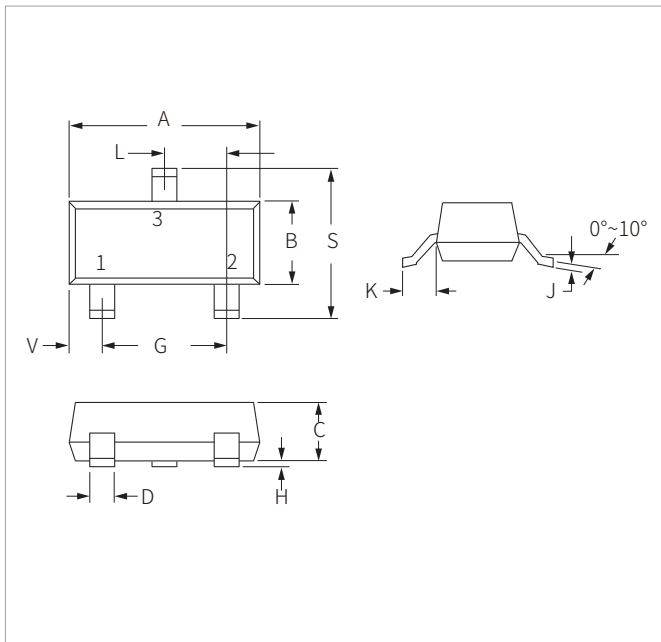
**Figure 7**

**Figure 8**


## SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(min)}$ )	150°C
	Temperature Max ( $T_{s(max)}$ )	200°C
	Time (min to max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak $T_{s(max)}$ to $T_L$ - Ramp-up Rate)		3°C/second max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Time (min to max) ( $t_r$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260°C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes max.
Do not exceed		260°C

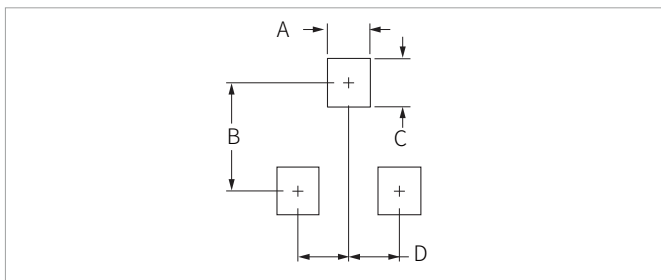


## SOT23-3L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.15	0.110	0.124
B	1.50	1.70	0.060	0.070
C	1.00	1.30	0.039	0.051
D	0.37	0.50	0.015	0.020
G	1.78	2.10	0.070	0.083
H	0.01	0.15	0.001	0.006
J	0.08	0.18	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.60	3.00	0.102	0.118
V	0.45	0.60	0.018	0.024

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.70	1.00	0.028	0.039
B	2.30	2.50	0.090	0.098
C	0.70	1.00	0.028	0.039
D	0.80	1.10	0.032	0.043

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SNM3400	SOT23-3L	3000PCS	7"

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