

## P-Channel 30V (D-S) MOSFET

V <sub>DSS</sub>	R <sub>DS(on)MAX</sub>	I <sub>D</sub>
-30V	0.055Ω@-10V	-4.2A
	0.082Ω@-4.5V	

### Features

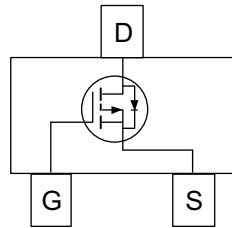
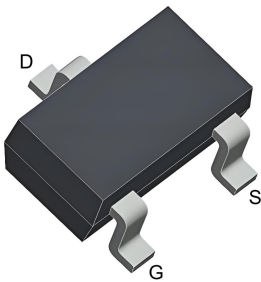
- PWM Optimized
- Low Gate Charge
- RoHS Compliant

### Applications

- Load Switch
- Power management

### Pin Configuration

SOT23-3L



### Packing Information

Device	Reel Size	Tape Width	Quantity
ECG3407	7"	8mm	3000pcs

### Absolute Maximum Ratings (T<sub>J</sub>=25 °C Unless Otherwise Noted)

Symbol	Parameter	Value	Unit
V <sub>DS</sub>	Drain-Source Voltage	-30	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub>	Drain Current -Continuous <sup>A</sup>	-4.2	A
I <sub>DM</sub>	Drain Current - Pulse <sup>B</sup>	-15	A
<b>Power Dissipation, Temperature and Thermal Resistance</b>			
P <sub>D</sub>	Power Dissipation <sup>A</sup>	1.5	W
R <sub>θJA</sub>	Thermal Resistance from Junction to Ambient <sup>A</sup>	82	°C/W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C
T <sub>L</sub>	Lead Temperature	260	°C

**P-ch MOSFET ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Static</b>						
Drain-source breakdown voltage	V <sub>(BR)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> = -30V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1.0		-2.5	V
Drain-source on-resistance	R <sub>DS(on)</sub> <sup>B</sup>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -4A		39	55	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.5A		53	68	mΩ
Diode forward voltage	V <sub>SD</sub>	I <sub>S</sub> = -1.0A, V <sub>GS</sub> = 0V			-1.2	V
<b>Dynamic<sup>C</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1MHz		580		pF
Output Capacitance	C <sub>oss</sub>			98		
Reverse Transfer Capacitance	C <sub>rss</sub>			74		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.1A		6.8		nC
Gate-Source Charge	Q <sub>gs</sub>			1.0		
Gate-Drain Charge	Q <sub>gd</sub>			1.4		
Gate Resistance	R <sub>g</sub>	f = 1MHz	1.3	6.5	13	Ω
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -15V, R <sub>L</sub> = 15 Ω I <sub>D</sub> ≅ -1A, V <sub>GS</sub> = -10 V, R <sub>g</sub> = 2.5Ω		14		ns
Rise Time	t <sub>r</sub>			61		
Turn-Off Delay Time	t <sub>d(off)</sub>			19		
Fall Time	t <sub>f</sub>			10		

A. The data tested by surface mounted on a 1 inch x 1 inch FR-4 board with 2OZ copper.

B. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

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

**MOSFET TYPICAL CHARACTERISTICS(25°C, unless otherwise noted)**

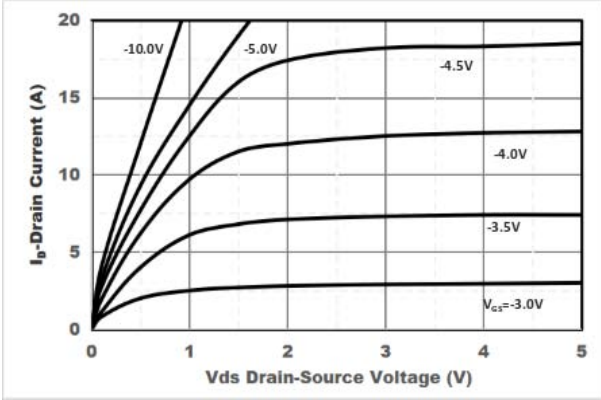


Figure1. Output Characteristics

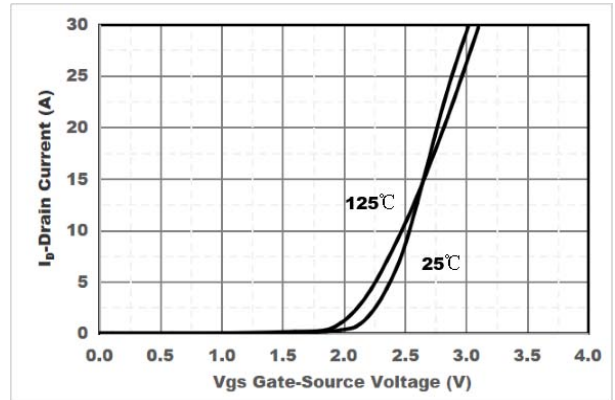


Figure2. Transfer Characteristics

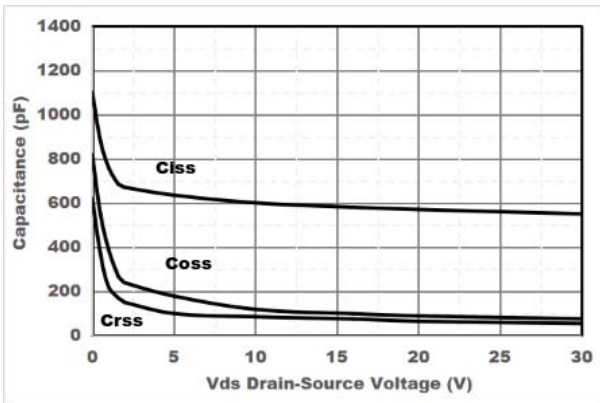


Figure3. Capacitance Characteristics

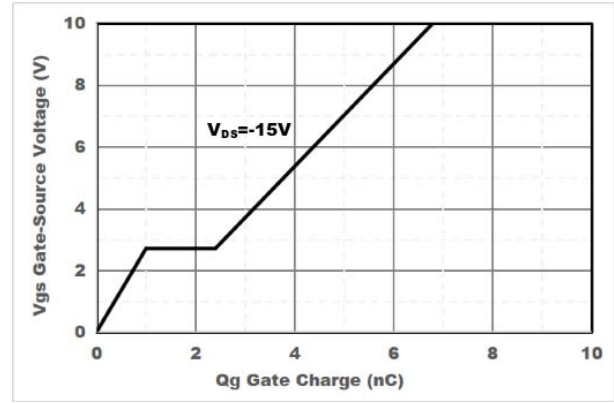


Figure4. Gate Charge

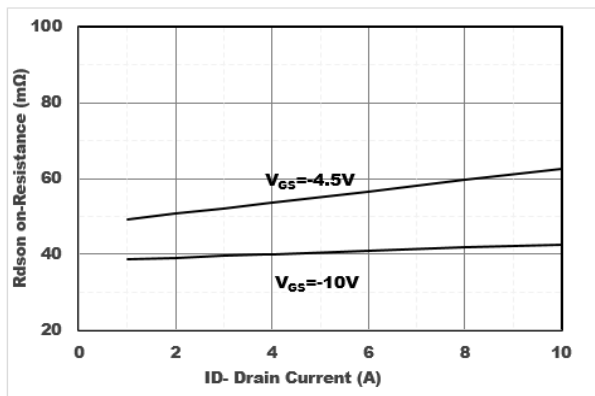


Figure5. Drain-Source on Resistance

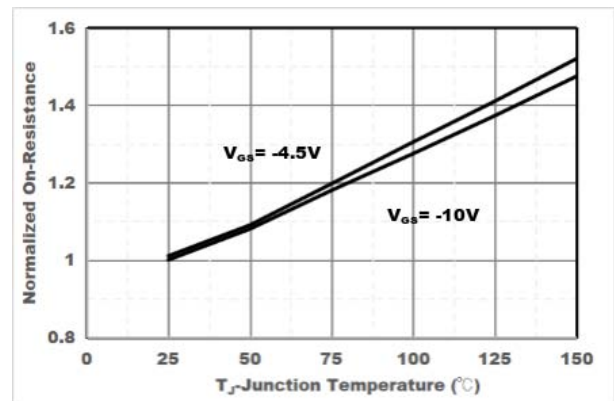


Figure6. Drain-Source on Resistance

**MOSFET TYPICAL CHARACTERISTICS(25°C, unless otherwise noted)**

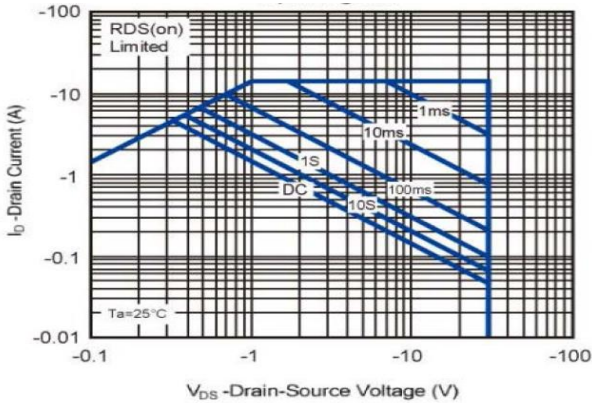


Figure7. Safe Operation Area

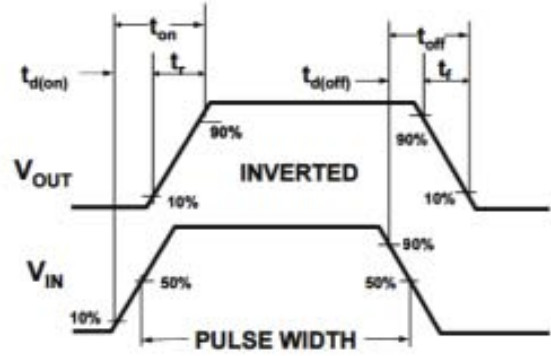
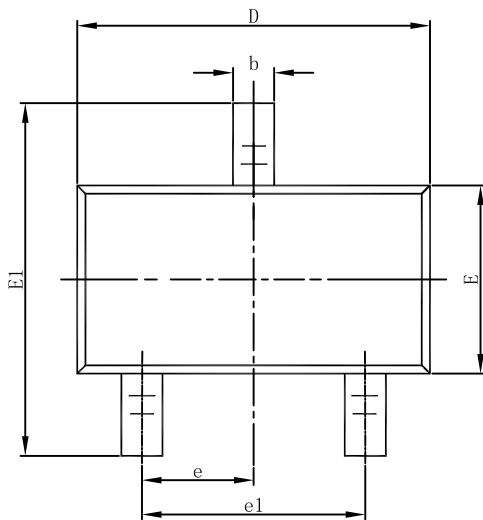
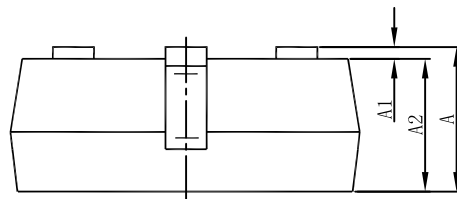
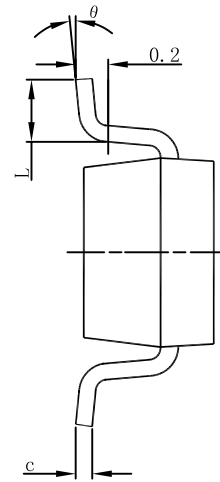


Figure8. Switching wave

### SOT23-3L Package Information



Top View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°