

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

$V_{DS}$	$R_{DS(on)MAX}$	$I_D$
-30V	190 mΩ @ -10V	-2.7A
	330mΩ @ -4.5V	-2.1A

### Features

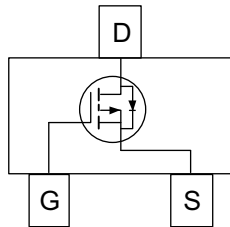
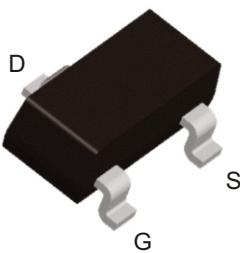
- Small package SOT23-3L
- Low Gate Charge
- RoHS Compliant

### Applications

- Load Switch

### Pin Configuration

SOT23-3L



### Packing Information

Device	Marking	Reel Size	Tape Width	Quantity
ECG2303	13D .XXX	7"	8mm	3000pcs

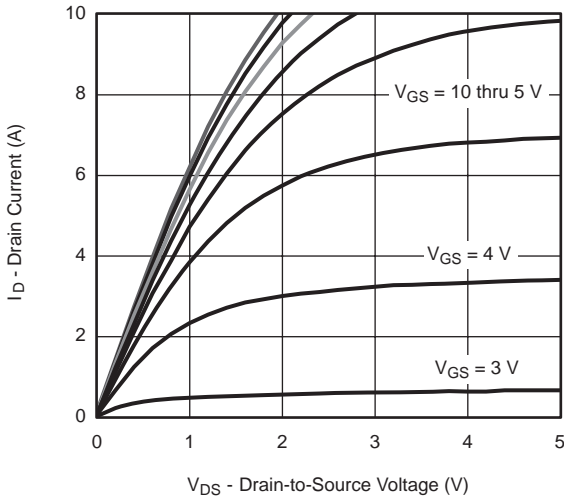
### Absolute Maximum Ratings (T<sub>J</sub>=25 °C Unless Otherwise Noted)

Symbol	Parameter	Value	Unit
<b>P-MOSFET</b>			
$V_{DS}$	Drain-Source Voltage	-30	V
$V_{GS}$	Gate-Source Voltage	±20	V
$I_D$	Continuous Drain Current	-2.7	A
$I_{DM}$	Pulse Drain Current	-10	A
$P_D$	Maximum Power Dissipation	2.3	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	276	°C/W
$T_j$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature	-55~+150	°C
$T_L$	Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	260	°C
<b>Thermal Resistance Ratings</b>			
$R_{thJA}$	Maximum Junction-to-Ambient <sup>b</sup>	80	°C/W
	Maximum Junction-to-Ambient <sup>c</sup>	120	°C/W

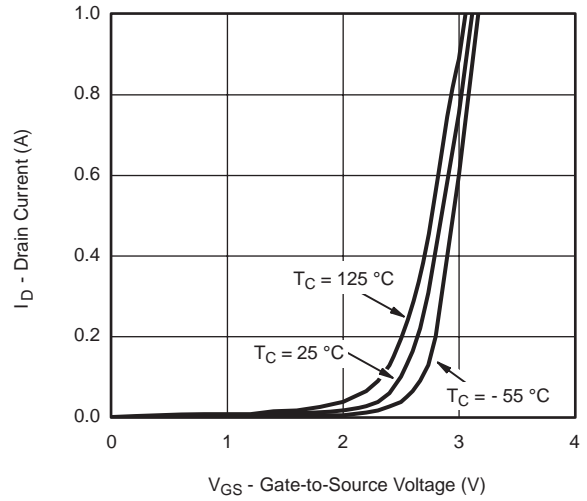
**Electrical Characteristics (T<sub>J</sub> = 25°C Unless Otherwise Specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>STATIC PARAMETERS</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>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1		-3	V
Drain-source on-resistance(note1)	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -1.9A		158	190	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -1.4A		275	330	mΩ
Forward transconductance(note1)	g <sub>FS</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -1.9A		2		S
Diode forward voltage(note1)	V <sub>SD</sub>	I <sub>S</sub> = -1.5A, V <sub>GS</sub> = 0V		-0.8	-1.2	V
<b>DYNAMIC</b>						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1MHz		155		pF
Output capacitance	C <sub>oss</sub>			35		pF
Reverse transfer capacitance	C <sub>rss</sub>			25		pF
<b>SWITCHING PARAMETERS (note 2)</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = -4.5V, V <sub>DD</sub> = -15V, R <sub>L</sub> = 10Ω, R <sub>G</sub> = 1Ω, I <sub>D</sub> = -1.5 A		36	44	ns
Turn-on rise time	t <sub>r</sub>			37	45	ns
Turn-off delay time	t <sub>d(off)</sub>			12	18	ns
Turn-off fall time	t <sub>f</sub>			9	14	ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -1.9A		4	8	nC
				2	4	nC
Gate-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -1.9A		0.6		nC
Gate-Drain Charge	Q <sub>gd</sub>			1		nC

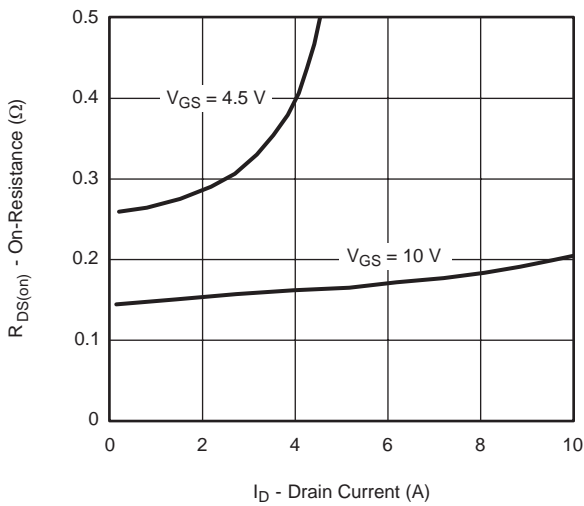
**MOSFET TYPICAL CHARACTERISTICS (25°C, unless otherwise noted)**



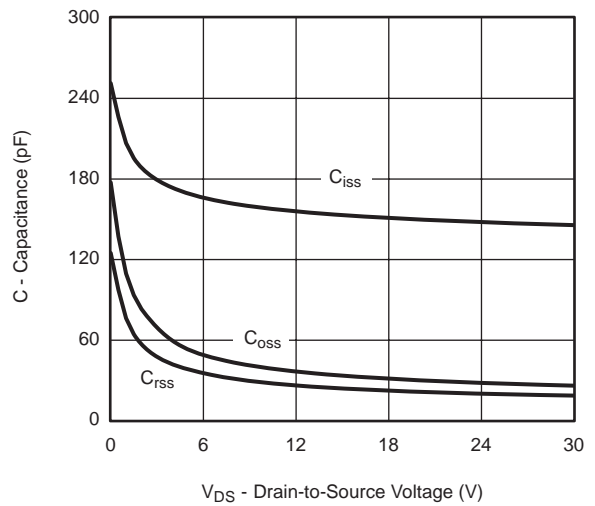
**Output Characteristics**



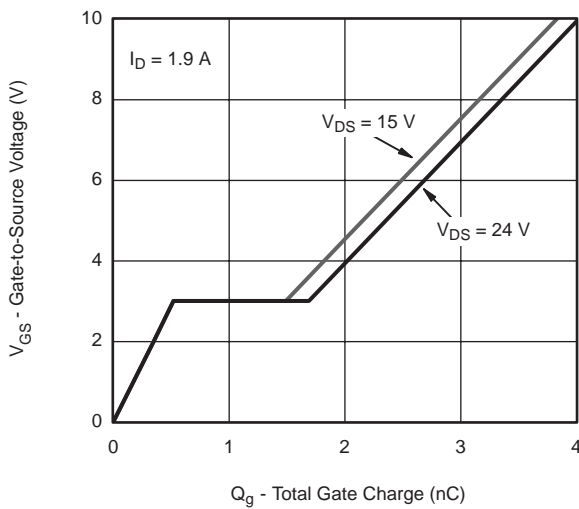
**Transfer Characteristics**



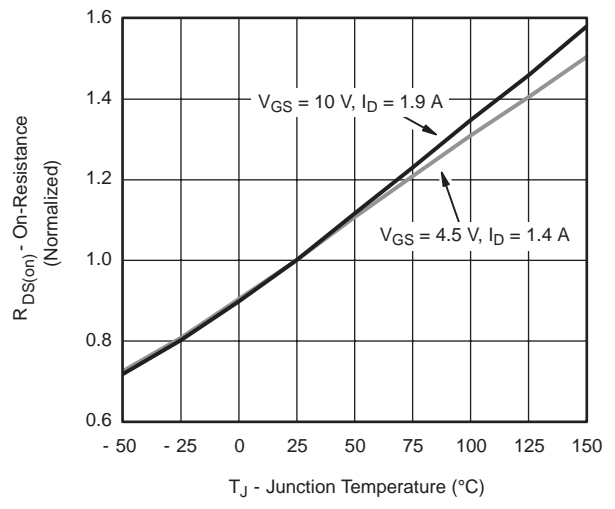
**On-Resistance vs. Drain Current and Gate Voltage**



**Capacitance**

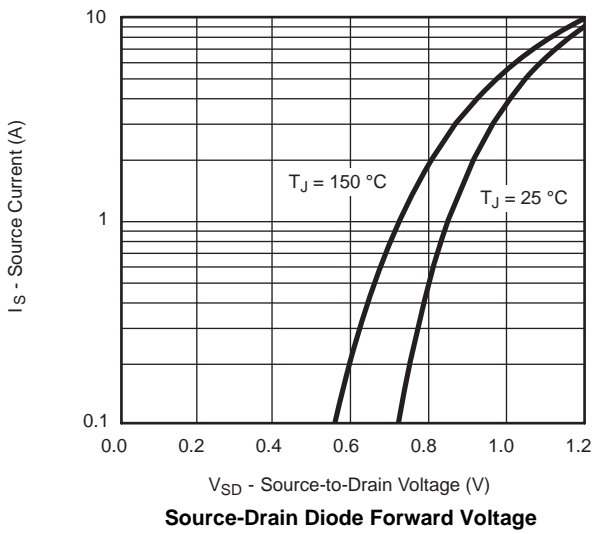


**Gate Charge**

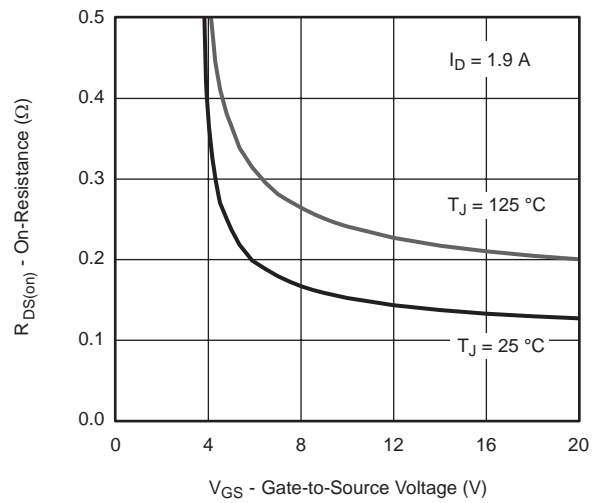


**On-Resistance vs. Junction Temperature**

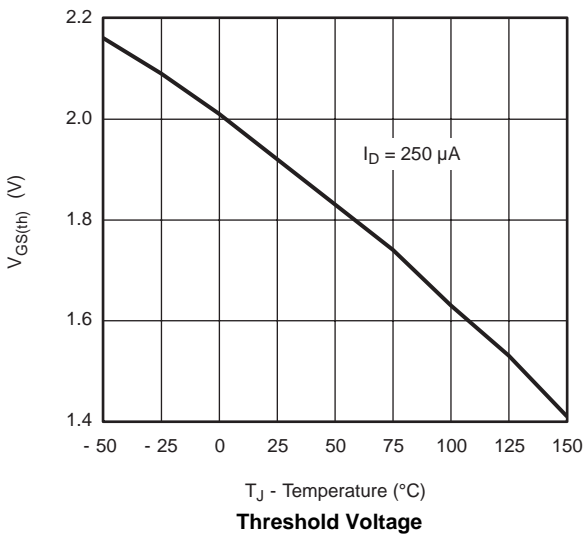
**MOSFET TYPICAL CHARACTERISTICS (25°C, unless otherwise noted)**



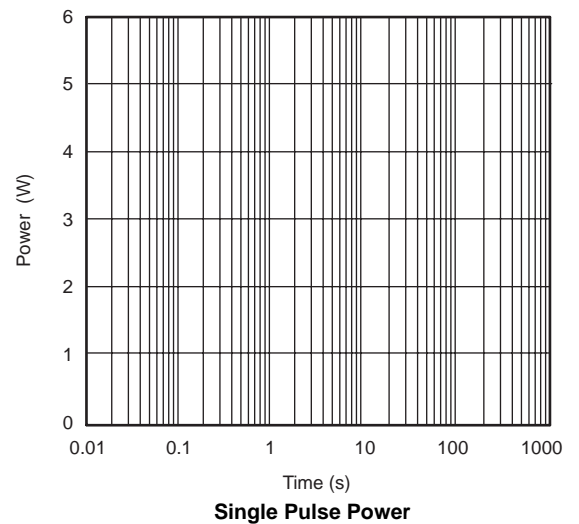
**Source-Drain Diode Forward Voltage**



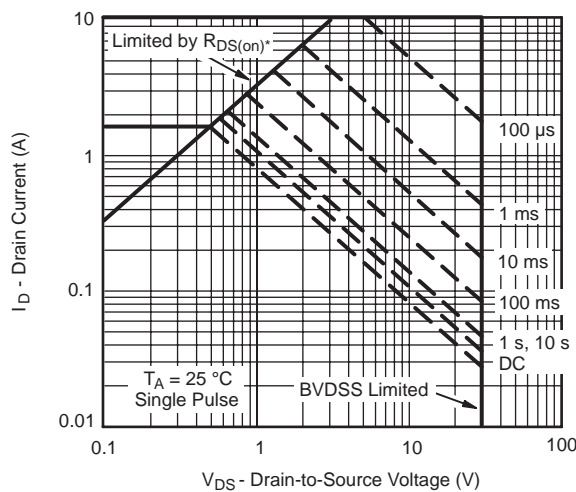
**On-Resistance vs. Gate-to-Source Voltage**



**Threshold Voltage**



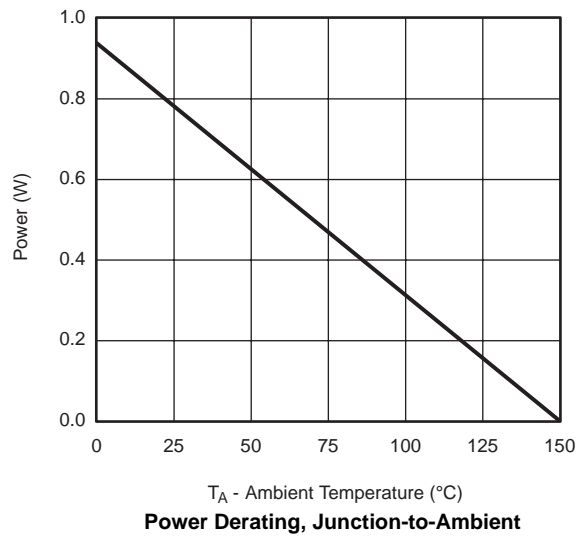
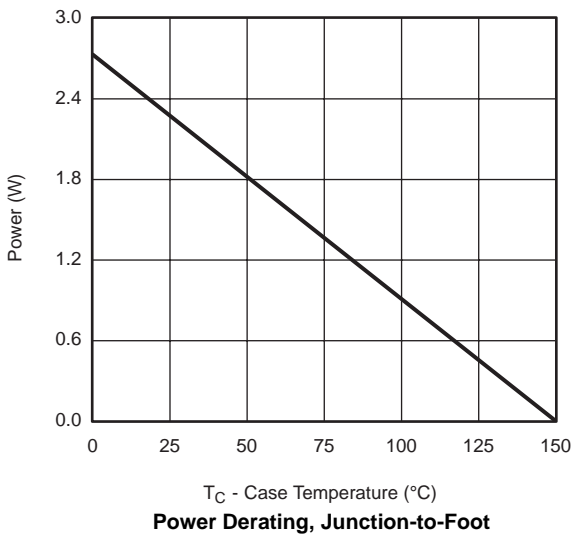
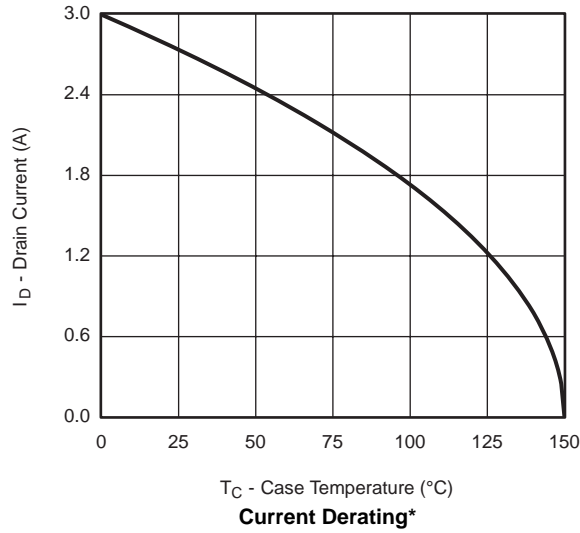
**Single Pulse Power**



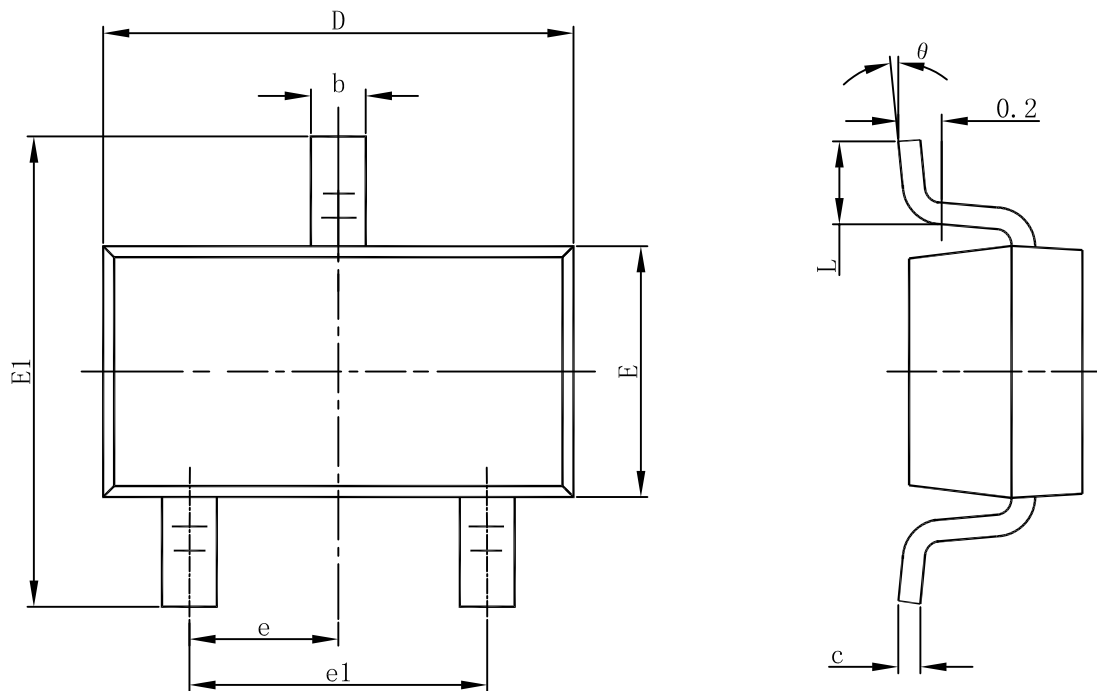
\*  $V_{GS} >$  minimum  $V_{GS}$  at which  $R_{DS(on)}$  is specified

**Safe Operating Area**

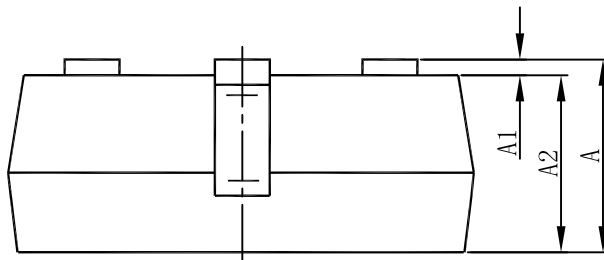
**SCHOTTKY TYPICAL CHARACTERISTICS (25°C, unless otherwise noted)**



### 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
$\theta$	0°	8°	0°	8°