

P-Channel 30V (D-S) MOSFET

V_{DS}	$R_{DS(on)MAX}$	I_D
-30V	88 m Ω @-10V	-2.7A
	138 m Ω @-4.5V	-2.2A

Features

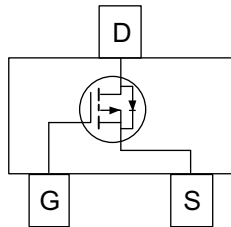
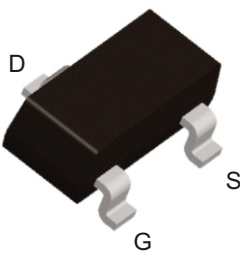
- Small package SOT23-3L
- Low Gate Charge
- RoHS Compliant

Applications

- Load Switch for Portable Devices

Pin Configuration

SOT23-3L



Packing Information

Device	Marking	Reel Size	Tape Width	Quantity
ECG2307	13D .XXX	7"	8mm	3000pcs

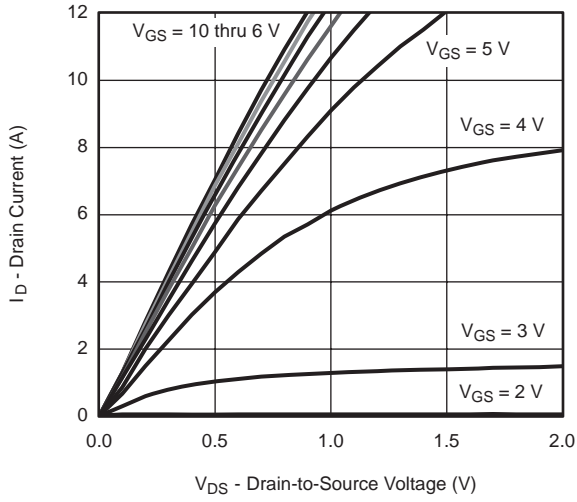
Absolute Maximum Ratings (T_J=25 °C Unless Otherwise Noted)

Symbol	Parameter	Value	Unit
P-MOSFET			
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current	-3.5	A
I_{DM}	Pulse Drain Current	-12	A
P_D	Maximum Power Dissipation	1.8	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	207	°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
Thermal Resistance Ratings			
R_{thJA}	Maximum Junction-to-Ambient ^b	90	°C/W
	Maximum Junction-to-Ambient ^c	115	°C/W

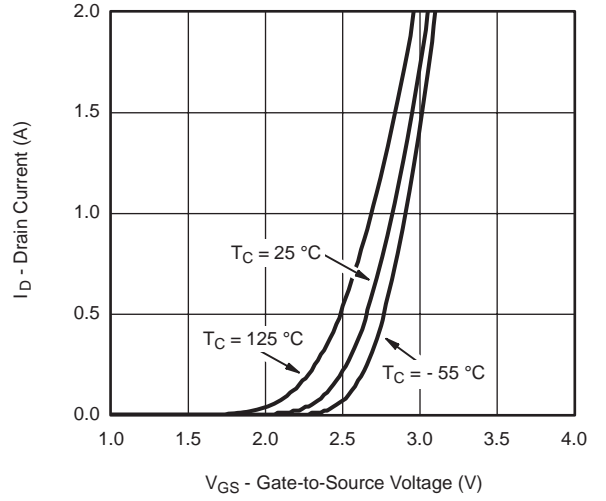
Electrical Characteristics ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250 \mu A$	-30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu A$	-1		-3	V
Drain-source on-resistance(note1)	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -3.5A$		73	88	$m\Omega$
		$V_{GS} = -4.5V, I_D = -2.5A$		110	138	$m\Omega$
Forward transconductance(note1)	g_{FS}	$V_{DS} = -10V, I_D = -3.5A$		7		S
Diode forward voltage(note1)	V_{SD}	$I_S = -0.75A, V_{GS} = 0V$		-0.8	-1.2	V
DYNAMIC						
Input capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		340		pF
Output capacitance	C_{oss}			67		pF
Reverse transfer capacitance	C_{rss}			51		pF
SWITCHING PARAMETERS (note 2)						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DD} = -15V,$ $R_L = 15\Omega, R_G = 1\Omega, I_D = -1A$		40	60	ns
Turn-on rise time	t_r			40	60	ns
Turn-off delay time	$t_{d(off)}$			20	40	ns
Turn-off fall time	t_f			17	30	ns
Total Gate Charge	Q_g	$V_{DS} = -15V, V_{GS} = -4.5V,$ $I_D = -2.5A$		4.1	6.2	nC
Gate-Source Charge	Q_{gs}			1.3		nC
Gate-Drain Charge	Q_{gd}			1.8		nC

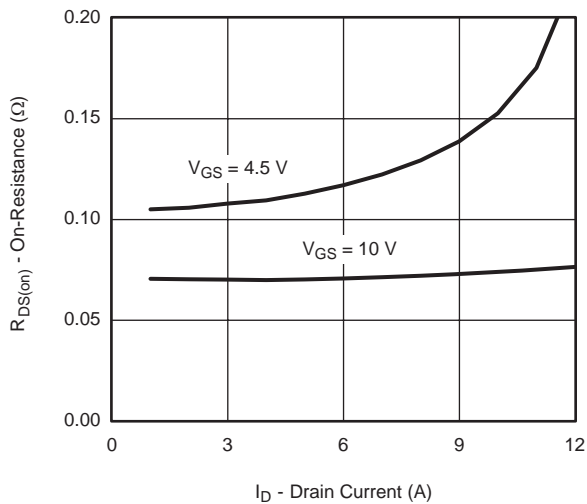
MOSFET TYPICAL CHARACTERISTICS (25°C, unless otherwise noted)



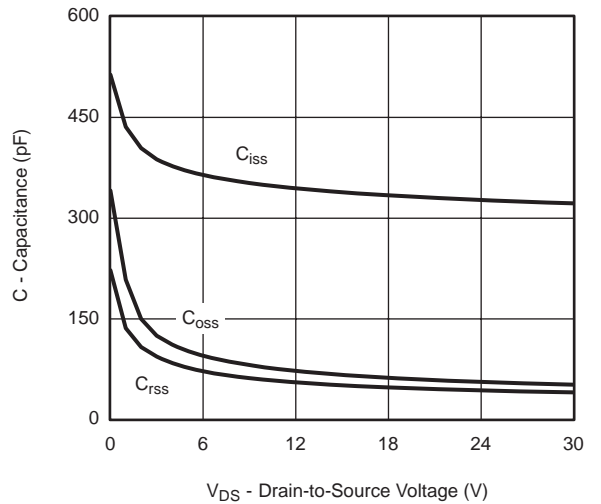
Output Characteristics



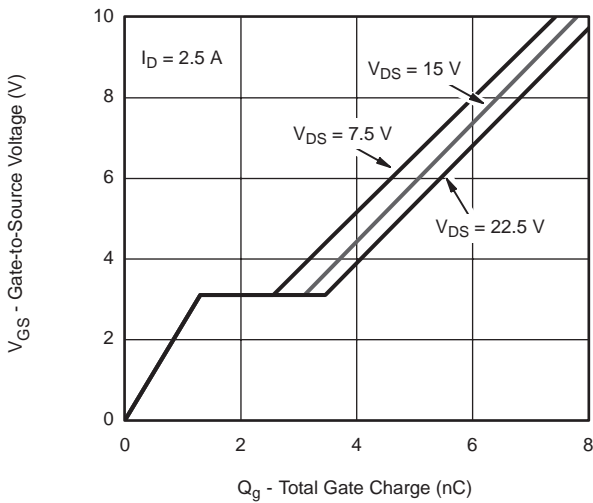
Transfer Characteristics



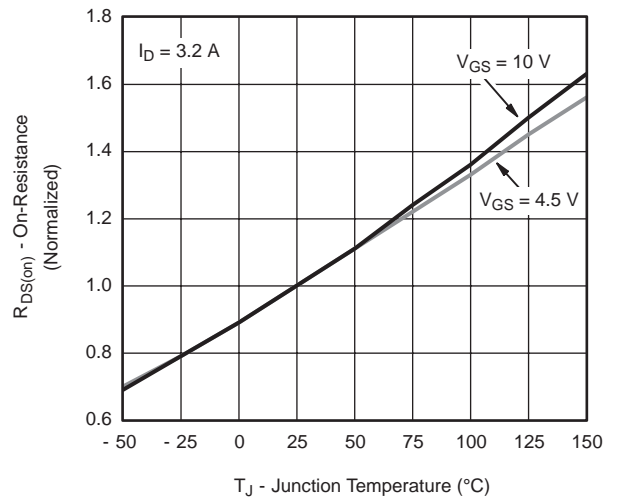
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

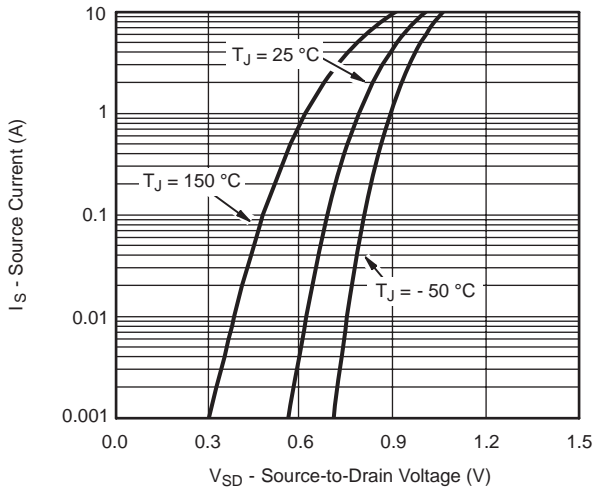


Gate Charge

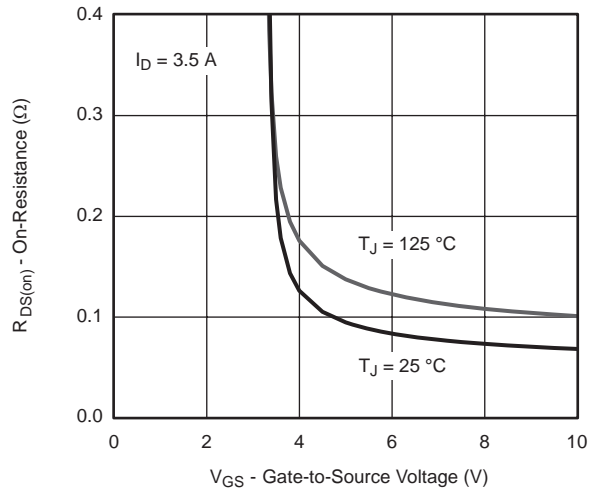


On-Resistance vs. Junction Temperature

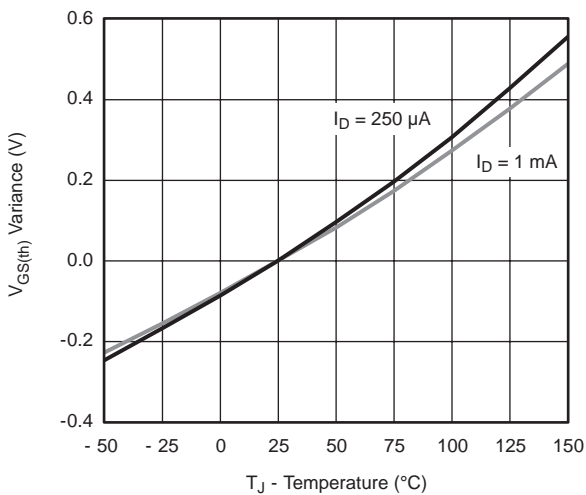
MOSFET TYPICAL CHARACTERISTICS (25°C, unless otherwise noted)



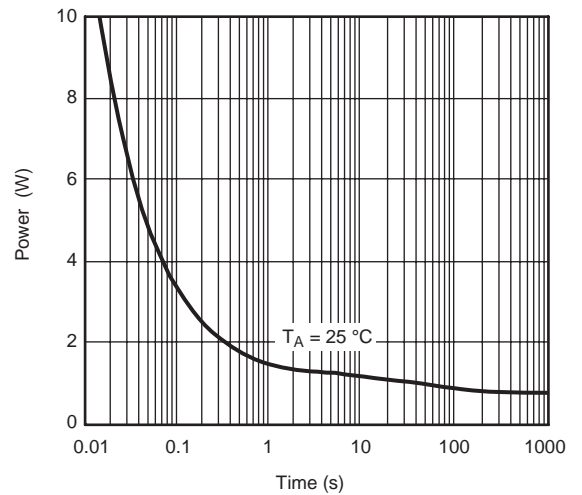
Source-Drain Diode Forward Voltage



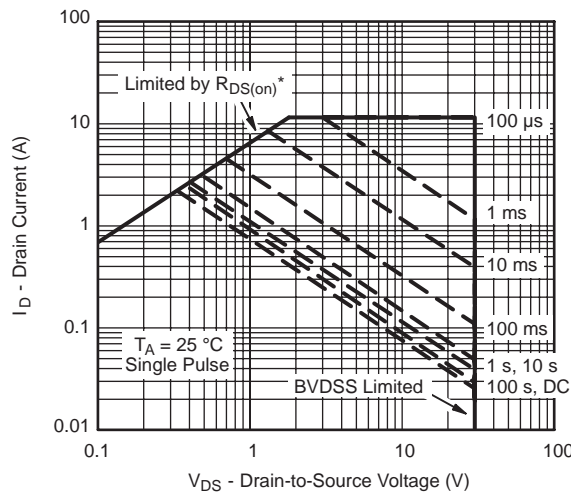
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



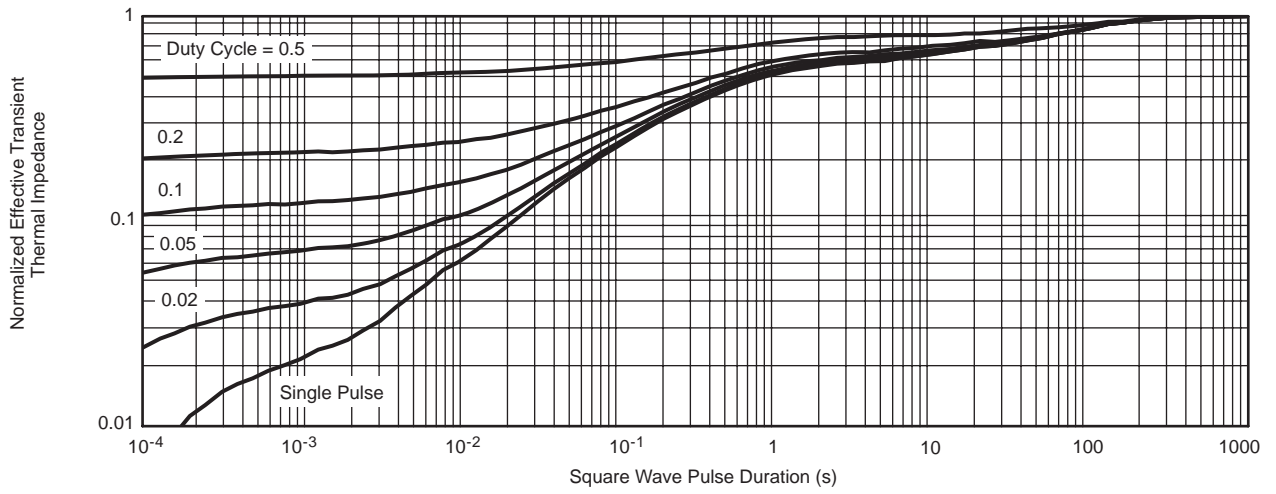
Single Pulse Power, Junction-to-Ambient



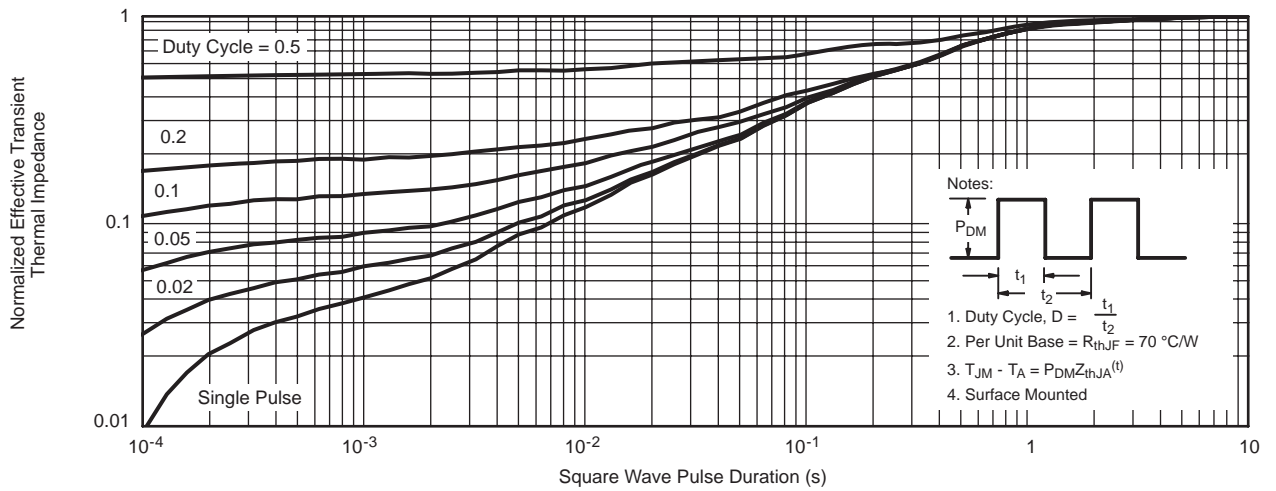
* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient

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

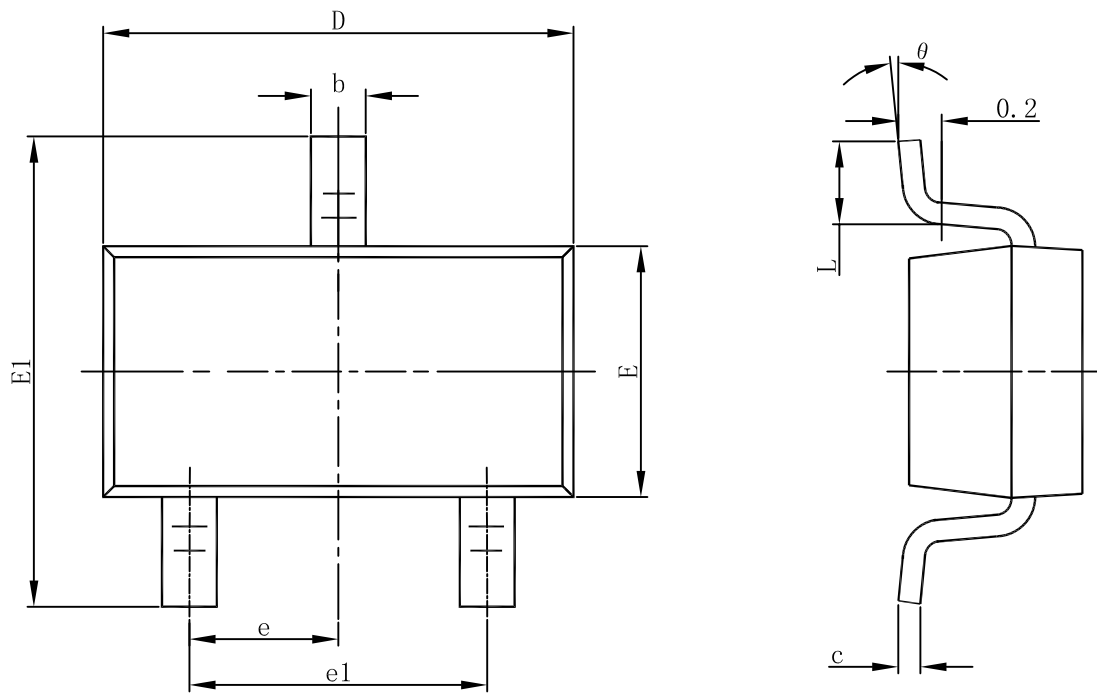


Normalized Thermal Transient Impedance, Junction-to-Ambient

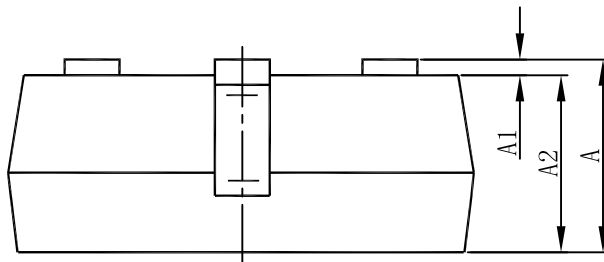


Normalized Thermal Transient Impedance, Junction-to-Foot

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°