

N-Channel 30V (D-S) MOSFET

V_{DS}	$R_{DS(on)MAX}$	I_D
30V	68 mΩ@4.5V	3.6A
	85 mΩ@2.5V	3.4A

Features

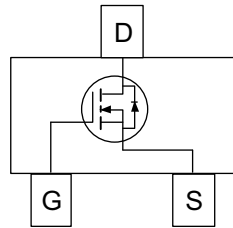
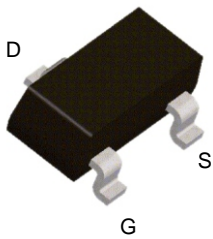
- Low Gate Charge
- RoHS Compliant

Applications

- DC/DC Converter for Portable Devices
- Load Switch

Pin Configuration

SOT23-3L



Packing Information

Device	Marking	Reel Size	Tape Width	Quantity
ECG2300	13D .XXX	7"	8mm	3000pcs

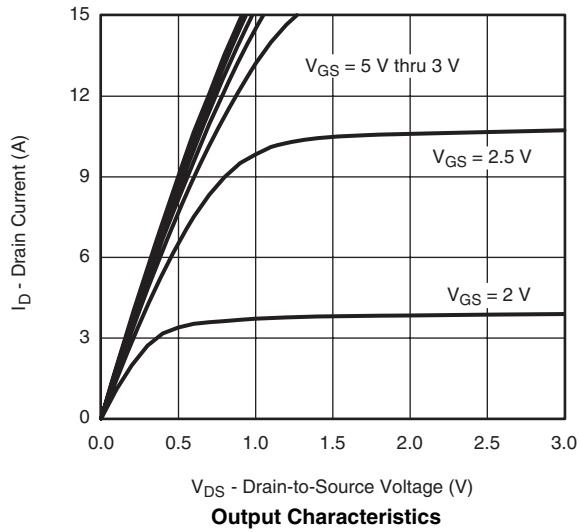
Absolute Maximum Ratings (T_J=25 °C Unless Otherwise Noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Drain Current -Continuous	3.6	A
I_{DM}	Drain Current - Pulse	15	A
Power Dissipation, Temperature and Thermal Resistance			
P_D	Power Dissipation	1.7	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	100	°C/W
	Thermal Resistance from Junction to Ambient	140	°C/W
T_j	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-55~+150	°C
T_L	Lead Temperature	260	°C

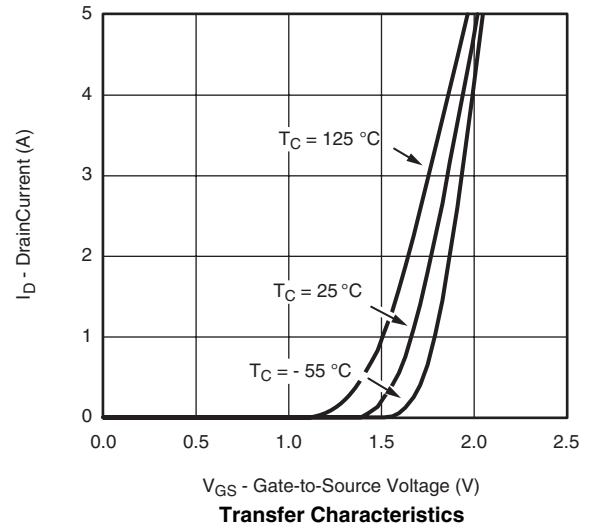
N-ch MOSFET ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.6		1.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 2.9A		65	68	mΩ
		V _{GS} = 2.5V, I _D = 2.6A		70	85	mΩ
Diode forward voltage	V _{SD}	I _S = 2.5A, V _{GS} = 0V		0.8	1.2	V
Dynamic						
Input Capacitance	C _{iSS}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		320		pF
Output Capacitance	C _{oss}			45		
Reverse Transfer Capacitance	C _{rSS}			19		
Total Gate Charge	Q _g	V _{DS} = 15V, V _{GS} = 10V, I _D = 3.1A		6.5	10	nC
Gate-Source Charge	Q _{gs}	V _{DS} = 15V, V _{GS} = 4.5V, I _D = 3.1A		3	4.5	
Gate-Drain Charge	Q _{gd}			0.8		
Gate Resistance	R _g		f = 1MHz	0.6	3.2	
Turn-on Delay Time	t _{d(on)}	V _{DD} = 15V, R _L = 6 Ω I _D ≈ 2.5A, V _{GEN} = 4.5V, R _g = 1Ω		10	15	ns
Rise Time	t _r			15	25	
Turn-Off Delay Time	t _{d(off)}			20	30	
Fall Time	t _f			11	20	

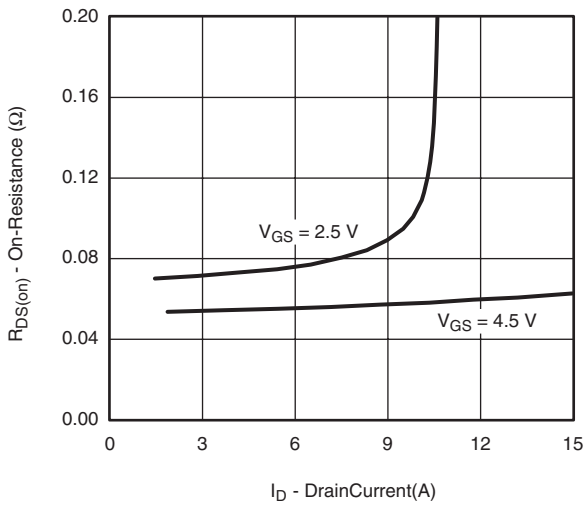
MOSFET TYPICAL CHARACTERISTICS(25°C, unless otherwise noted)



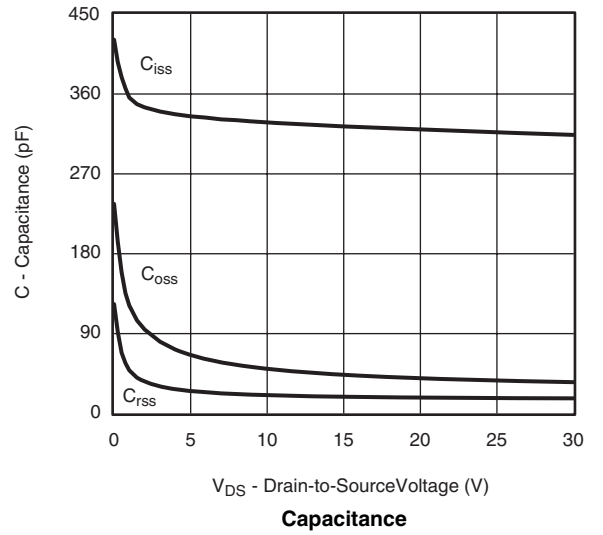
Output Characteristics



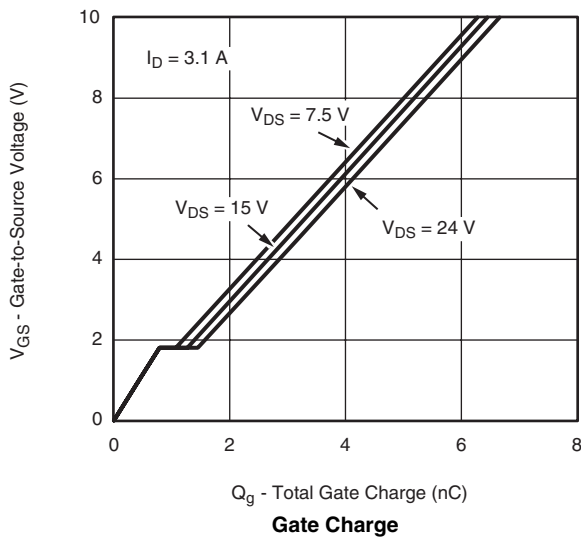
Transfer Characteristics



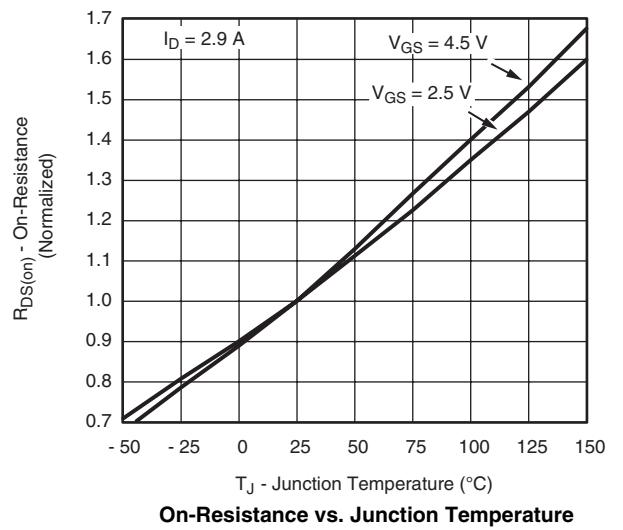
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

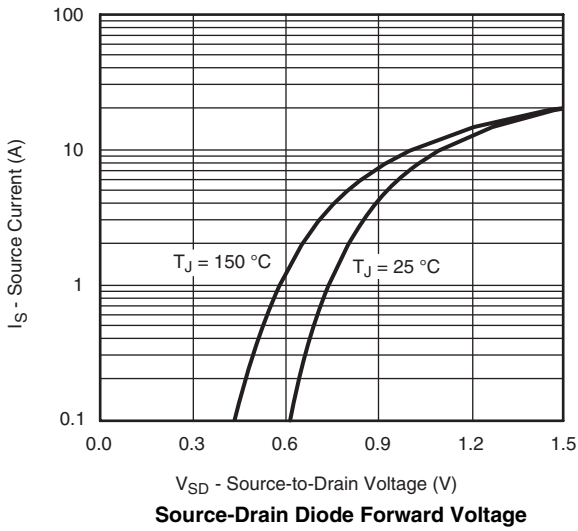


Gate Charge

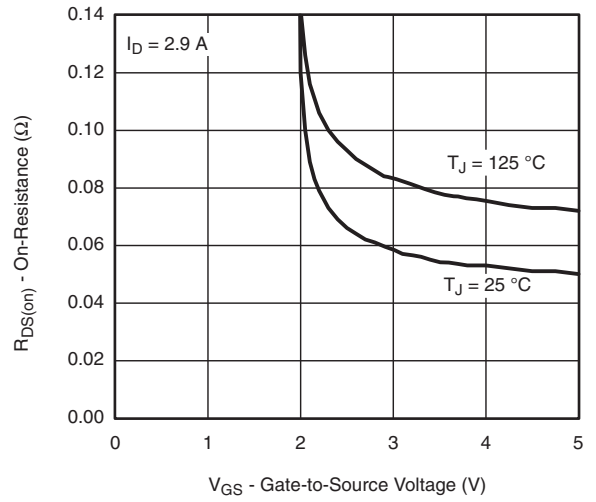


On-Resistance vs. Junction Temperature

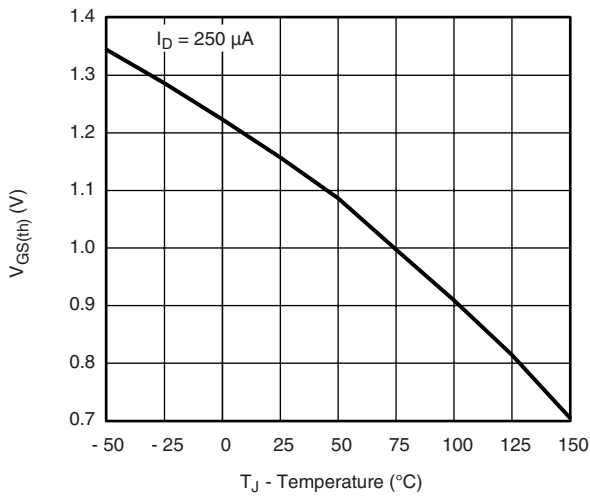
MOSFET TYPICAL CHARACTERISTICS(25°C, unless otherwise noted)



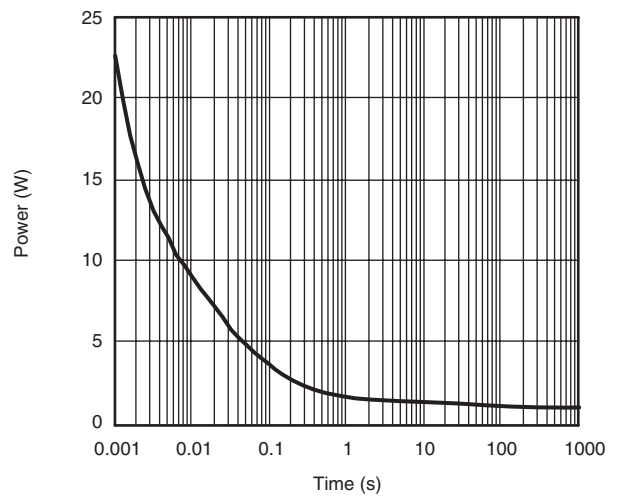
Source-Drain Diode Forward Voltage



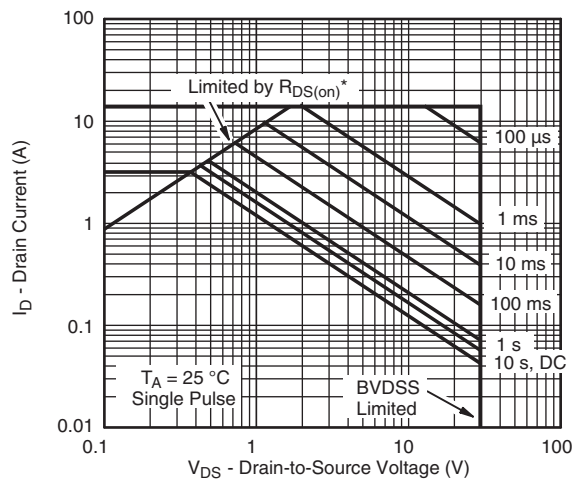
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



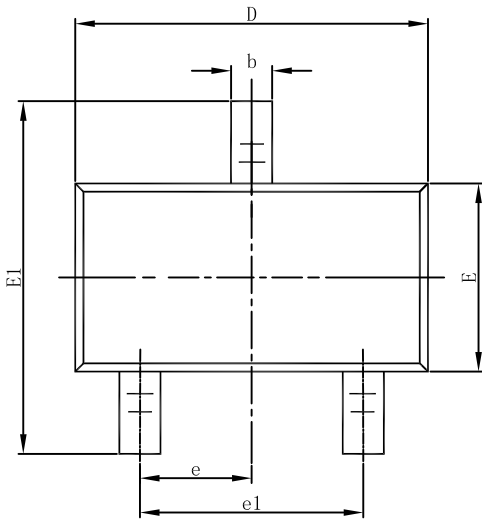
Single Pulse Power



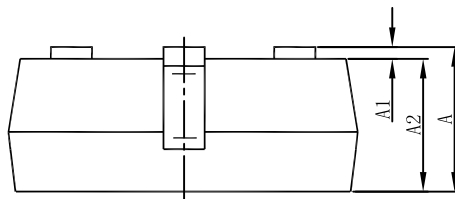
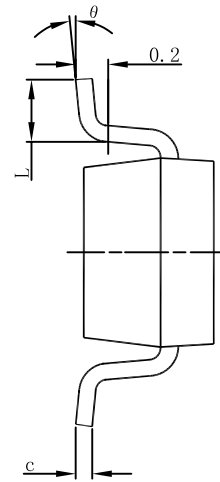
* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient

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°