N-Channel 30V (D-S) MOSFET

V_{DS}	$R_{DS(on)}$MAX	I_D
30V	60 mΩ@10V	3.6A
	75 mΩ@4.5V	3.6A

Features

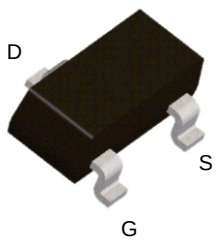
- Low Gate Charge
- RoHS Compliant

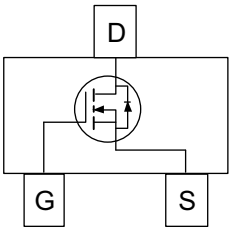
Applications

- DC/DC Converter

Pin Configuration

SOT23-3L





Packing Information

Device	Marking	Reel Size	Tape Width	Quantity
ECG2304	13D .XXX	7”	8mm	3000pcs

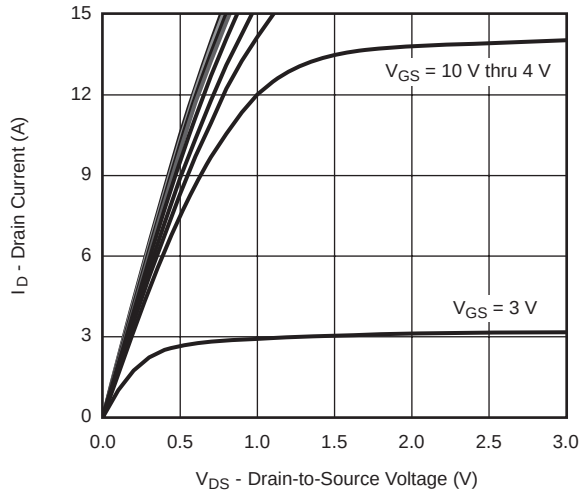
Absolute Maximum Ratings (TJ=25℃ Unless Otherwise Noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	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 (note1)	90	℃/W
	Thermal Resistance from Junction to Ambient (note2)	115	℃/W
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55~+150	℃
T_L	Lead Temperature	260	℃

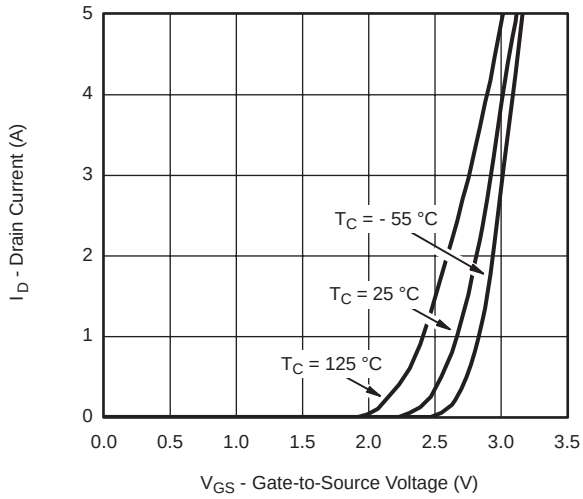
N-ch MOSFET ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

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} =±8V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.2		2.2	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =3.2A		49	60	mΩ
		V_{GS} =4.5V, I_D =2.8A		61	75	mΩ
Diode forward voltage	V_{SD}	I_S=2.7A, V_{GS} = 0V		0.8	1.2	V
Dynamic						
Input Capacitance	C_{iss}	V_{DS} =15V,V_{GS} = 0V, f =1MHz		235		pF
Output Capacitance	C_{oss}			45		
Reverse Transfer Capacitance	C_{rss}			17		
Total Gate Charge	Q_g	V_{DS} =15V, V_{GS} = 10V , I_D=3.4A		4.5	6.7	nC
		V_{DS} =15V,V_{GS} = 4.5V, I_D=3.4A		2.1	3.2	
Gate-Source Charge	Q_{gs}			0.85		
Gate-Drain Charge	Q_{gd}			0.65		
Gate Resistance	R_g	f=1MHz	0.8	4.4	8.8	Ω
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=15V,R_L= 5.6Ω I_D ≅2.7A,V_{GEN}=4.5V,R_g=1Ω		12	20	ns
Rise Time	t_r			50	75`	
Turn-Off Delay Time	$t_{d(off)}$			12	20	
Fall Time	t_f			22	35	

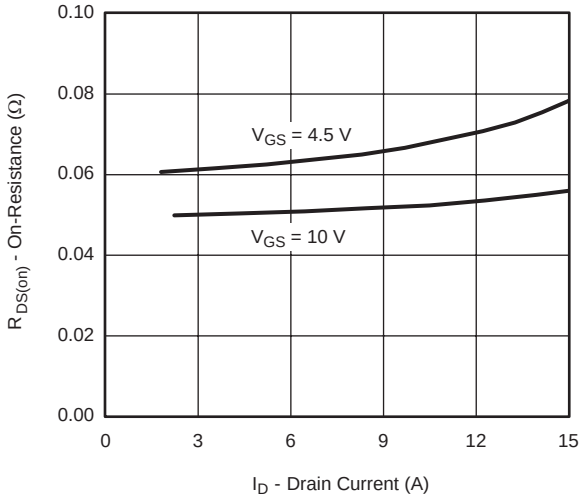
MOSFET TYPICAL CHARACTERISTICS(25°C, unless otherwise noted)



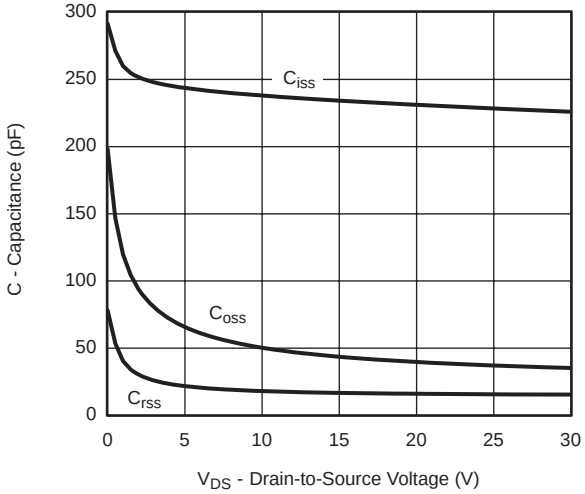
Output Characteristics



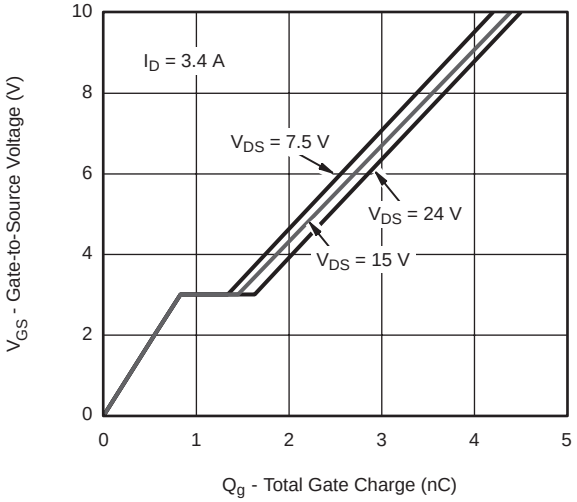
Transfer Characteristics



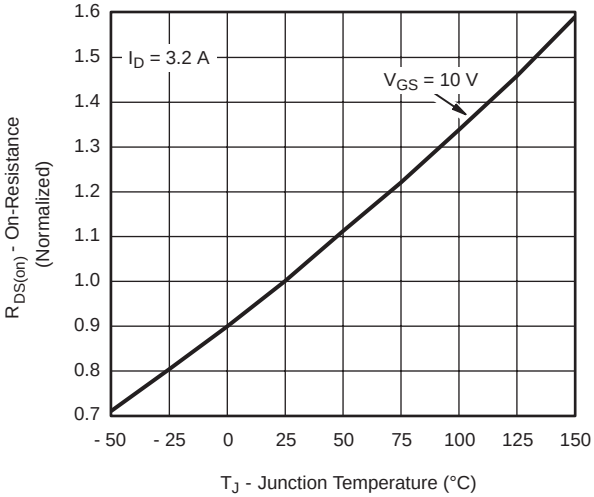
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

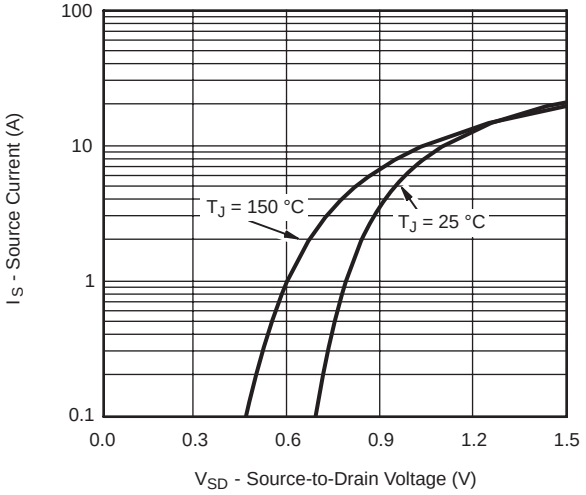


Gate Charge

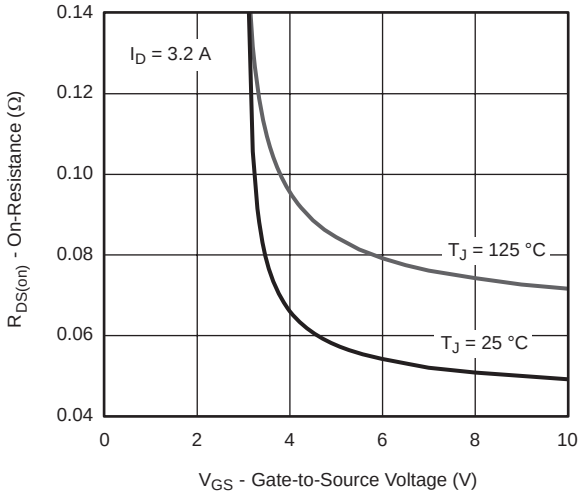


On-Resistance vs. Junction Temperature

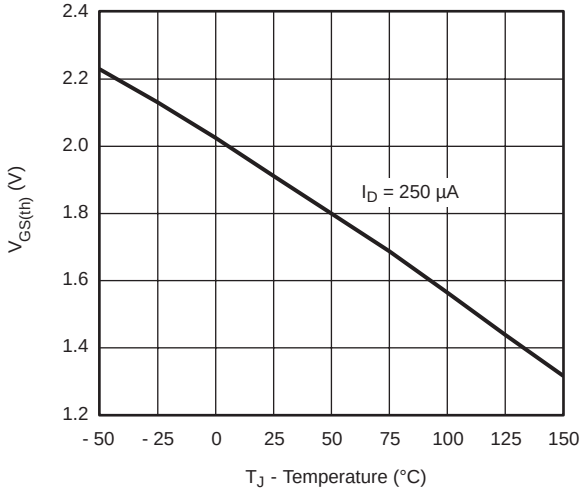
MOSFET TYPICAL CHARACTERISTICS(25°C, unless otherwise noted)



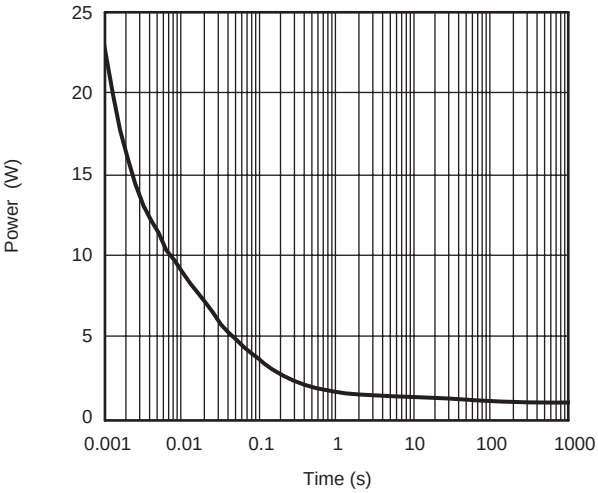
Source-Drain Diode Forward Voltage



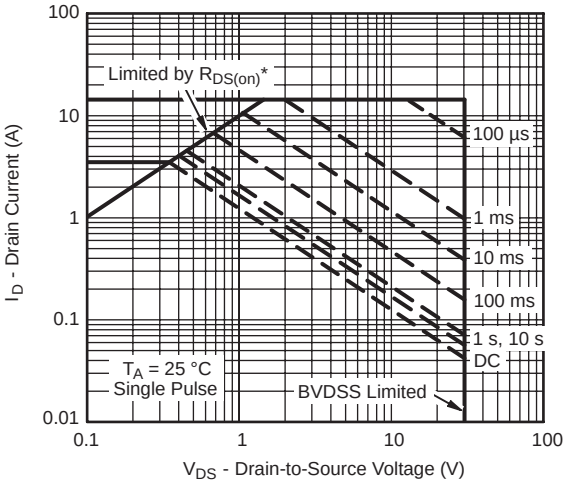
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



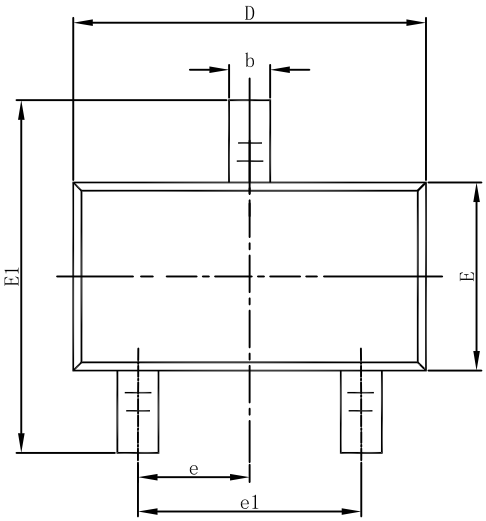
Single Pulse Power

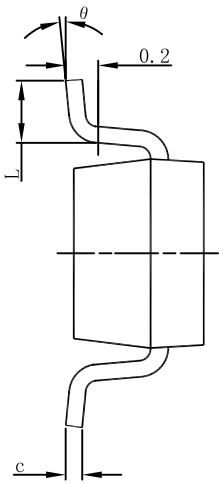


* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

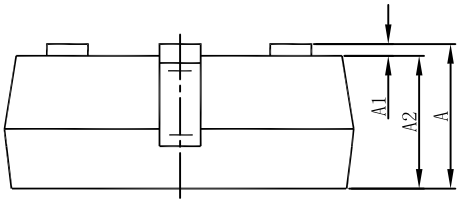
Safe Operating Area, Junction-to-Ambient

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°