N-Channel 30V(D-S) MOSFET

Product summary		
V_{DS}	30	V
$R_{DS(ON)}$(at V_{GS}=4.5V) Typ.	90	mΩ
$R_{DS(ON)}$(at V_{GS}=2.5V) Typ.	115	mΩ
I_D(T_A=25℃)	2.0	A

Features

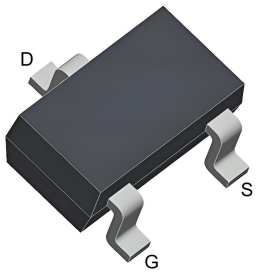
- Trench Power LV MOSFET technology
- Low $R_{DS(ON)}$
- Low Crss

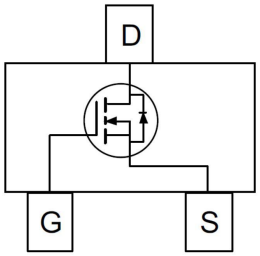
Applications

- Load switch
- Power management

Pin Configuration

SOT-23L





Packing Information

Device	Package	Reel Size	Quantity(Min. Package)
ECDA3402C	SOT-23	7″	3000pcs

Absolute Maximum Ratings (at TA=25℃ Unless Otherwise Noted)

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		30	V
V_{GS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current at V_{GS}=10V	T_A=25℃	2.0	A
		T_A=70℃	1.6	A
I_{DM}	Pulse Drain Current Tested [A]		8	A
P_D	Power Dissipation	T_A=25℃	0.9	W
T_J,T_{STG}	Junciton and Storage Temperature Range		-55 to +150	℃

Thermal Characteristics

Symbol	Parameter	Typical	Units
$R_{\theta JA}$	Thermal Resistance-Junction to ambient [B]	139	℃/W

Electrical Characteristics (at T_J =25℃ Unless Otherwise Noted)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
Static Parameters						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V,V_{GS}=0V	--	--	1	uA
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V,V_{GS}=±12V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	0.6	0.9	1.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance [C]	V_{GS}=4.5V,I_D=1A	--	90	110	mΩ
		V_{GS}=2.5V,I_D=1A	--	115	140	mΩ
V_{SD}	Forward Voltage	I_S=2A,V_{GS}=0V	--	--	1.2	V
I_S	Maximum Body-Diode Continuous Current		--	--	2	A
Dynamic Parameters [D]						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=10V f=1MHZ	--	120	--	pF
C_{oss}	Output Capacitance		--	18	--	pF
C_{rss}	Reverse Transfer Capacitance		--	13	--	pF
Q_g	Total Gate Charge	V_{DS}=15V,I_D=2A V_{GS}=5V	--	1.8	--	nC
Q_{gs}	Gate-Source Charge		--	0.3	--	nC
Q_{gd}	Gate-Drain Charge		--	0.5	--	nC
$t_{D(on)}$	Turn-on Delay Time	V_{DS}=10V,I_D=2A, R_G=6Ω,R_L=2.7Ω, V_{GS}=5V	--	9	--	nS
t_r	Turn-on Rise Time		--	25	--	nS
$t_{D(off)}$	Turn-off Delay Time		--	11	--	nS
t_f	Turn-off Fall Time		--	7	--	nS

A. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

B. Device mounted on FR-4 PCB, 1 inch x 1 inch x 0.062 inch.

C. Pulse Test: Pulse Width≤300us,Duty cycle ≤0.5%.

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

Typical Characteristic

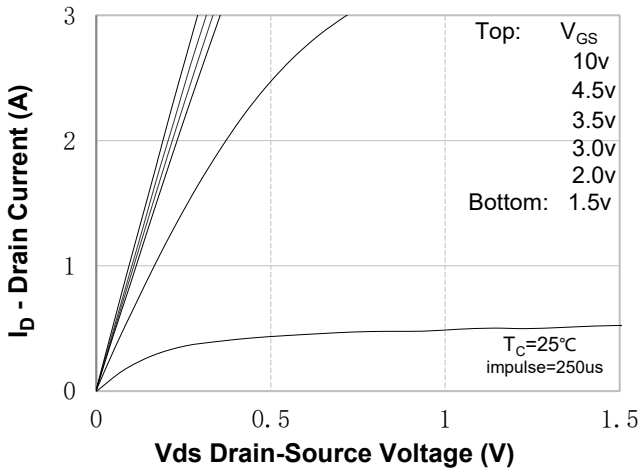


Figure 1. On-Region Characteristics

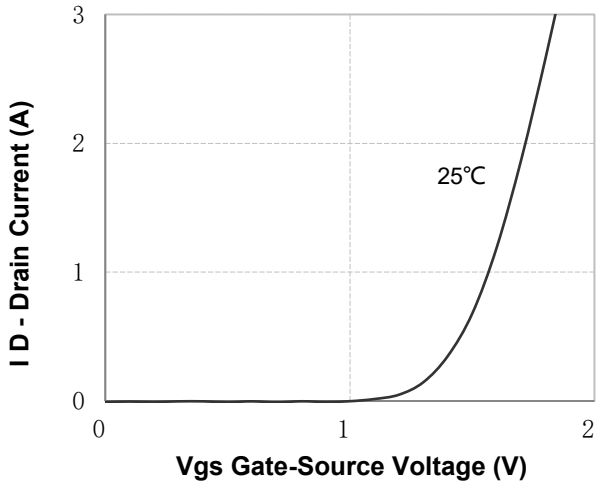


Figure 2. Transfer Characteristics

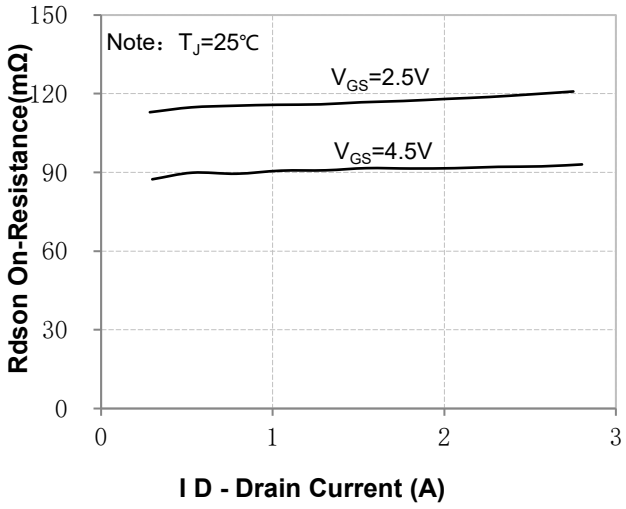


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

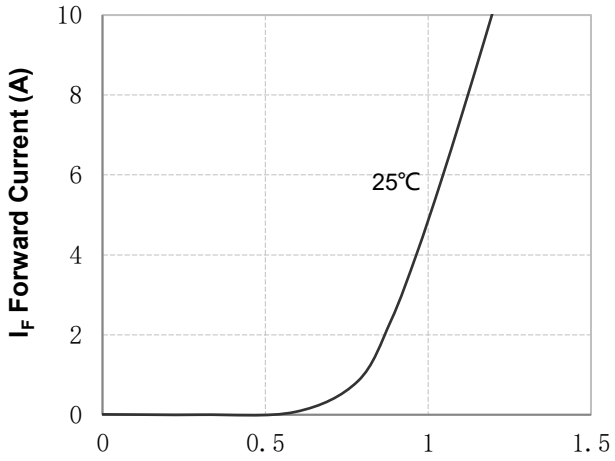


Figure 4. Body Diode Forward Voltage Variation with Source Current

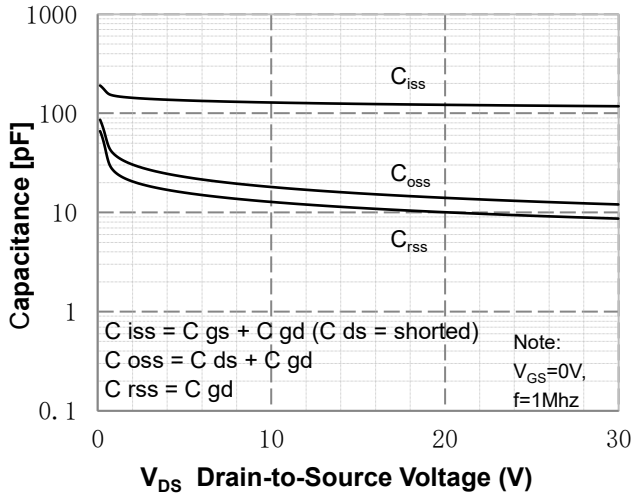


Figure 5. Capacitance Characteristics

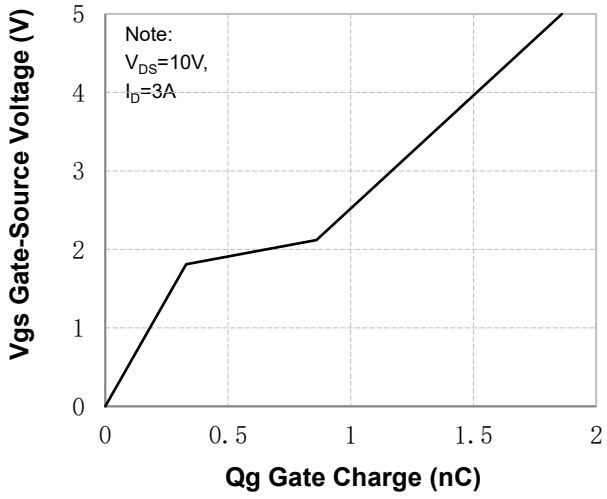


Figure 6. Gate Charge Characteristics

Typical Characteristics

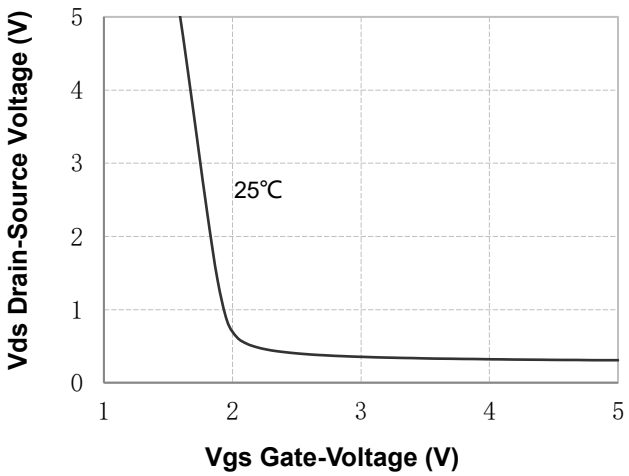


Figure 7. Vds Drain-Source Voltage vs Gate Voltage

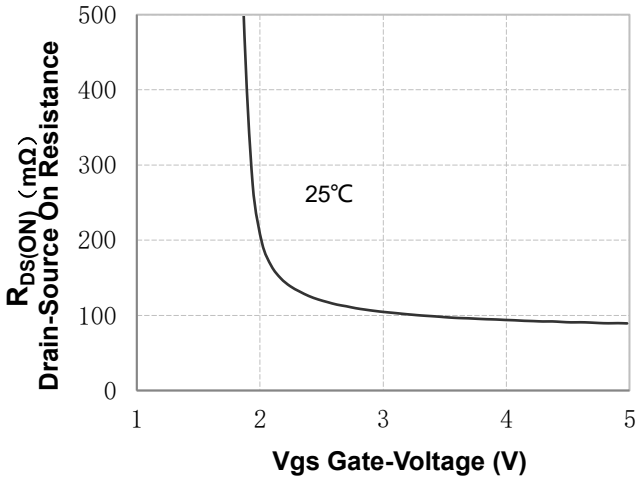


Figure 8. On-Resistance vs Gate Voltage

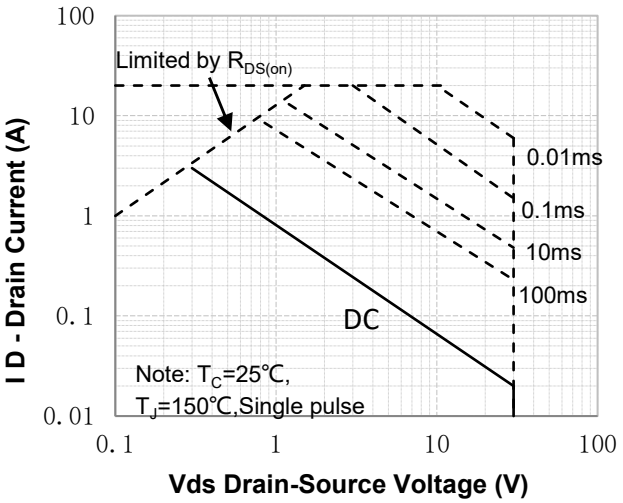


Figure 9. Maximum Safe Operating Area

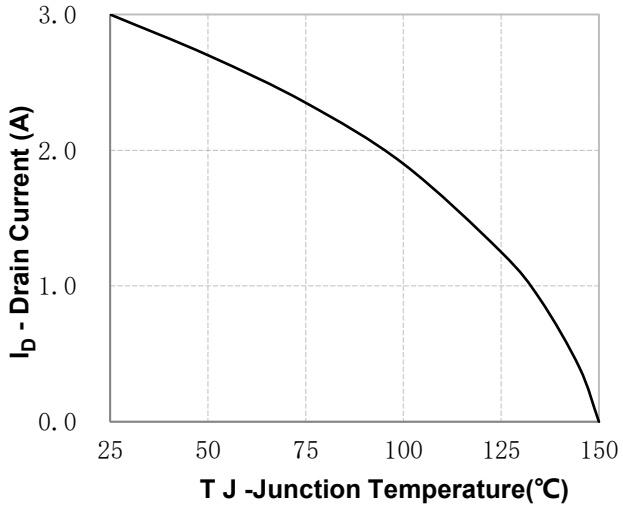


Figure 10. Maximum Continuous Drain Current vs Temperature

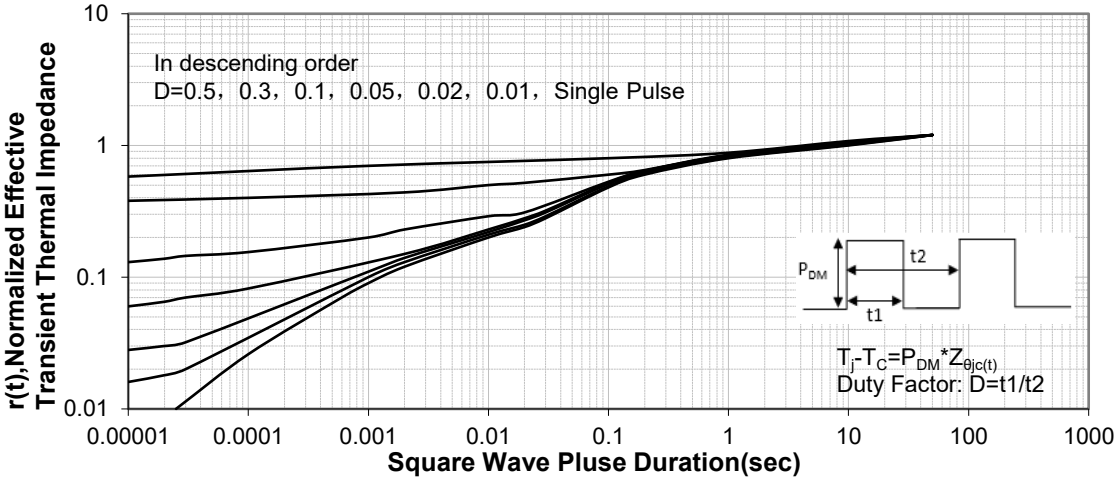
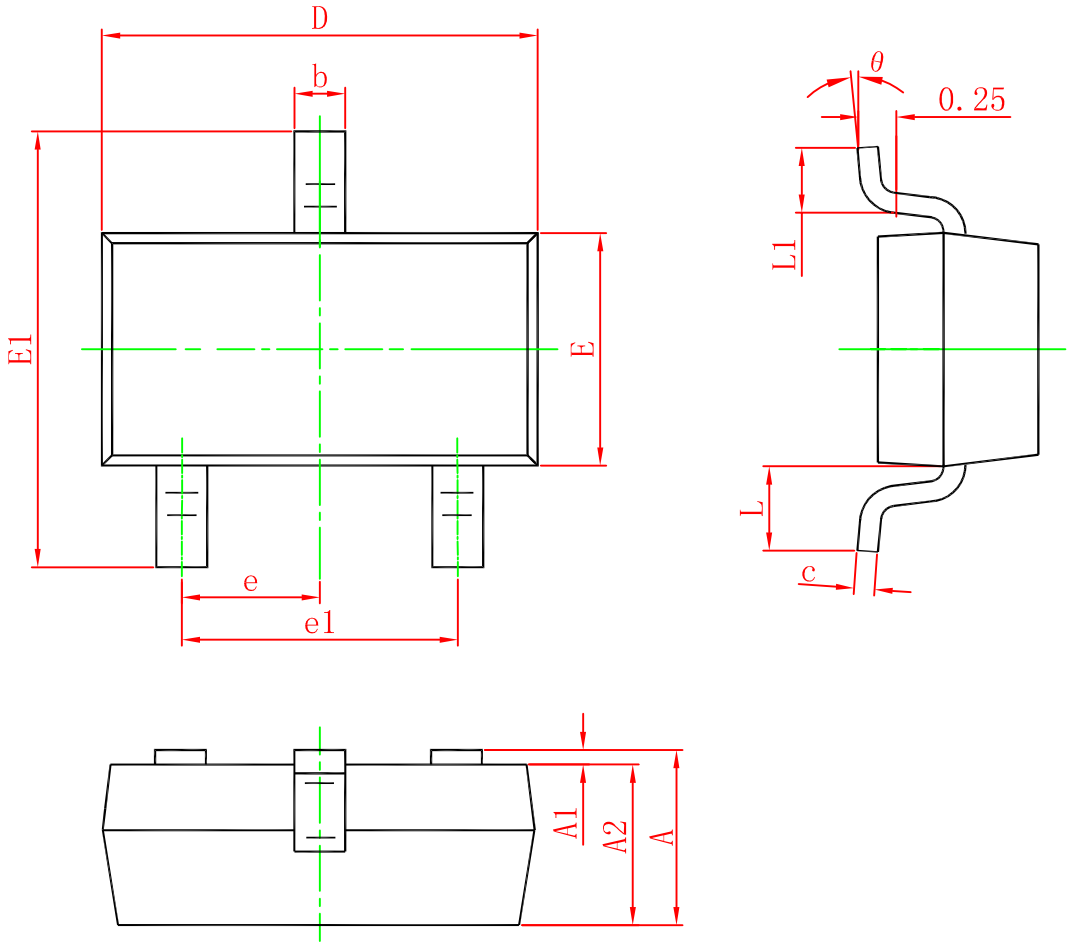


Figure 11. Transient Thermal Response Curve

SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°