P-Channel 20V(D-S) MOSFET

Product summary		
V_{DS}	-20	V
$R_{DS(ON)}$(at V_{GS}=-4.5V) Typ.	31	mΩ
$R_{DS(ON)}$(at V_{GS}=-2.5V) Typ.	38	mΩ
I_D(T_A=25℃)	-5	A

Features

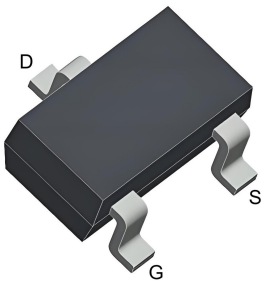
- Trench Power LV MOSFET technology
- Low Gate Charge
- Low $R_{DS(ON)}$

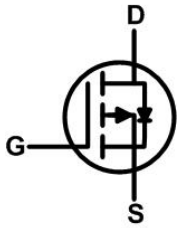
Applications

- Power management
- Video monitor

Pin Configuration

SOT23-3





Packing Information

Device	Reel Size	Quantity(Min. Package)
ECDB3415	7″	3000pcs

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

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		-20	V
V_{GS}	Gate-Source Voltage		±10	V
I_D	Continuous Drain Current at V_{GS}=-10V	T_A=25℃	-5	A
		T_A=70℃	-3.8	A
I_{DM}	Pulse Drain Current Tested [A]		-22	A
P_D	Power Dissipation	T_A=25℃	1.5	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]	83.3	℃/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	-20	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-20V,V_{GS}=0V	--	--	-1	uA
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V,V_{GS}=±8V	--	--	±2	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250uA	-0.4	--	-1.0	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=-4.5V,I_D=-5A	--	31	38	mΩ
		V_{GS}=-2.5V,I_D=-4A	--	38	53	mΩ
		V_{GS}=-1.8V,I_D=-2A	--	55	79	mΩ
V_{SD}	Forward Voltage	I_{SD}=-5A,V_{GS}=0V	--	--	-1.2	V
Dynamic Parameters						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=-10V f=1MHZ	--	935	--	pF
C_{oss}	Output Capacitance		--	210	--	pF
C_{rss}	Reverse Transfer Capacitance		--	112	--	pF
Switching Parameters						
Q_g	Total Gate Charge	V_{DS}=-10V,I_D=-4A V_{GS}=-4.5V	--	7.5	--	nC
Q_{gs}	Gate-Source Charge		--	1.3	--	nC
Q_{gd}	Gate-Drain Charge		--	1.5	--	nC
$t_{D(on)}$	Turn-on Delay Time	V_{DD}=-10V R_L=2.5Ω,V_{GS}=-4.5 V,R_{GEN}=3Ω	--	15	--	nS
t_r	Turn-on Rise Time		--	65	--	nS
$t_{D(off)}$	Turn-off Delay Time		--	23	--	nS
t_f	Turn-off Fall Time		--	14	--	nS

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

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

Typical Characteristics

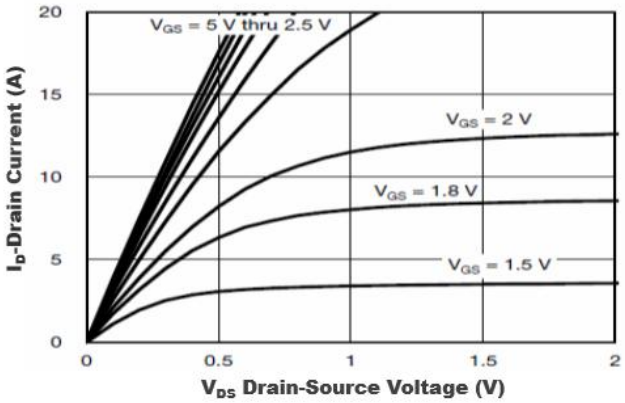


Figure1. Output Characteristics

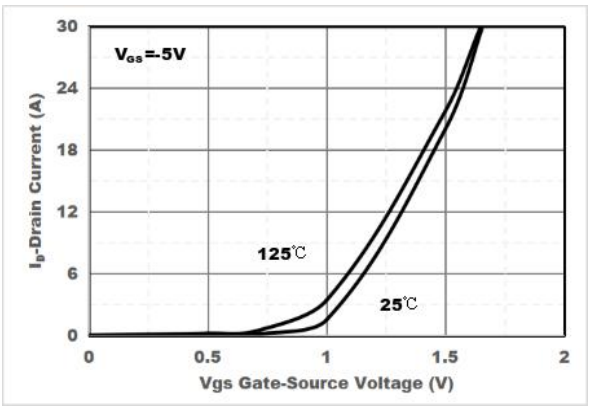


Figure2. Transfer Characteristics

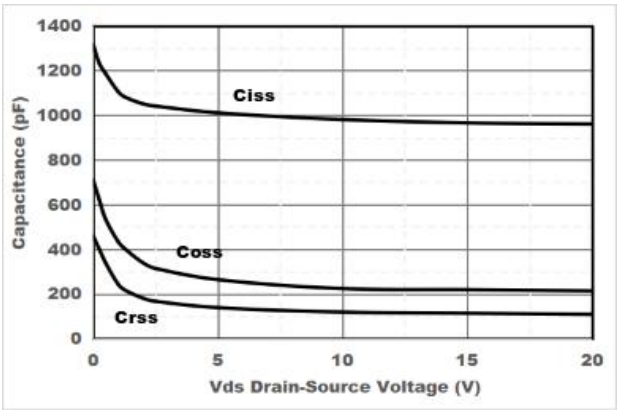


Figure3. Capacitance Characteristics

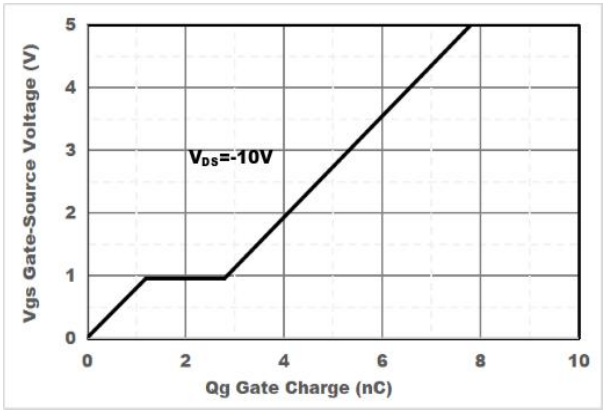


Figure4. Gate Charge

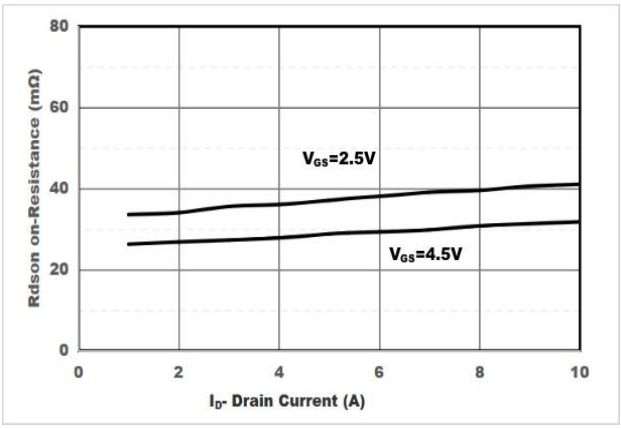


Figure5. Drain-Source on Resistance

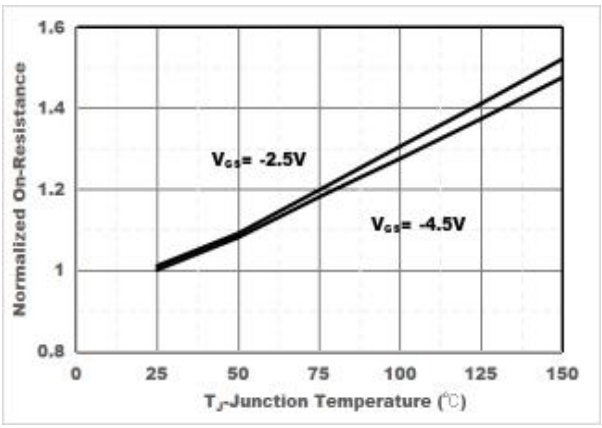


Figure6. Drain-Source on Resistance

Typical Characteristics

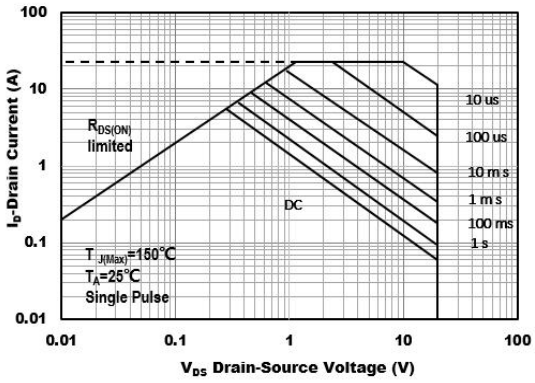


Figure7. Safe Operation Area

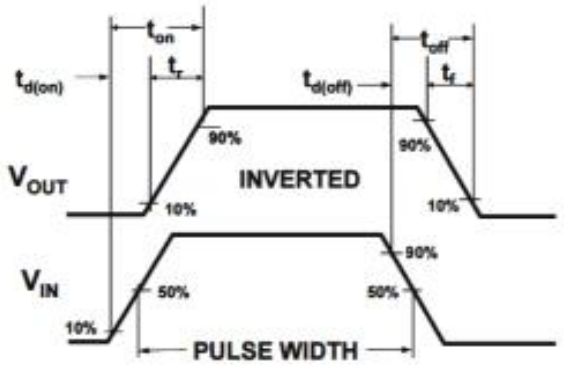
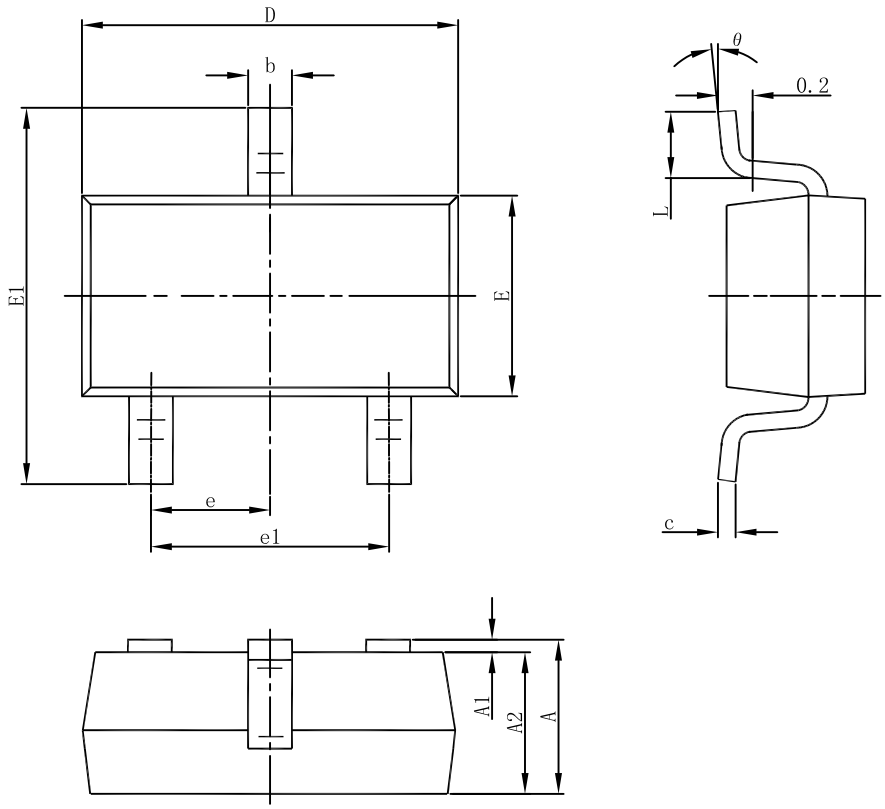


Figure8. Switching wave

SOT23-3 Package Information



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°