

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	27mΩ@-10V	-5.6A
	36mΩ@-2.5V	

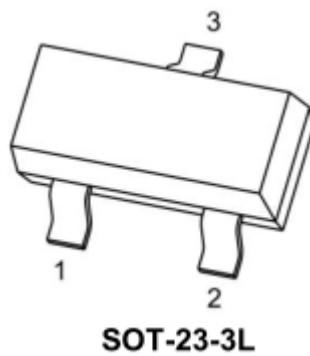
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge
- ESD Protected:2KV

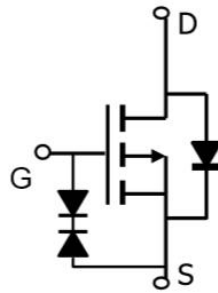
Applications

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

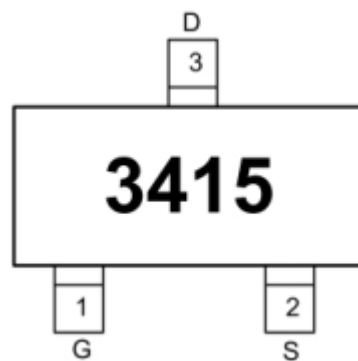
Package



Circuit diagram



Marking



Absolute maximum ratings

($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-5.6	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{DM}	-23	A
Power Dissipation	P_D	1.3	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	96	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}\text{C}$

Electrical characteristics

($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV (BR)DSS	V _{GS} = 0V, I _D = -250μA	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	uA
Gate-body leakage current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±5	uA
Gate threshold voltage ¹⁾	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.45	-0.6	-0.85	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = -4.5V, I _D = -5.6A		27	34	mΩ
		V _{GS} = -2.5V, I _D = -4.3A		36	48	
Dynamic Characteristics ²⁾						
Input capacitance	C _{iSS}	V _{DS} = -10V, V _{GS} =0V, f=1MHz		940		pF
Output capacitance	C _{oSS}			219		
Reverse transfer capacitance	C _{rSS}			116		
Switching Characteristics						
Total Gate Charge	Q _g	V _{GS} = -4.5V, V _{DD} = -10V, I _D = -4A		7.2		nC
Gate Source Charge	Q _{gs}			1.2		
Gate Drain Charge	Q _{gd}			1.6		
Turn-on Delay Time	T _{d(on)}	V _{GS} = -4.5V, V _{DS} = -10V, R _L = 2.5Ω, R _{GEN} = 3Ω		12		nS
Turn-on Rise Time	T _r			10		
Turn-Off Delay Time	T _{d(off)}			19		
Turn-Off Fall Time	t _f			25		
Source-Drain Diode Characteristics						
Diode Forward voltage	V _{DS}	I _S = -4A, V _{GS} = 0V			-1.2	V

Notes:

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

Typical Characteristics

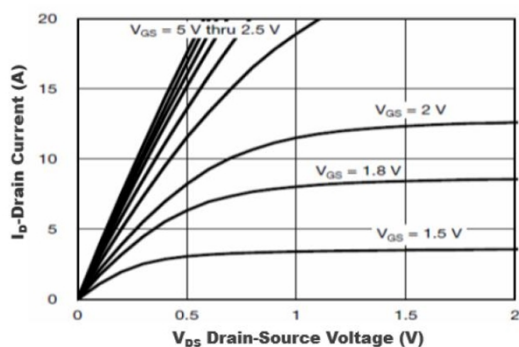


Figure1. Output Characteristics

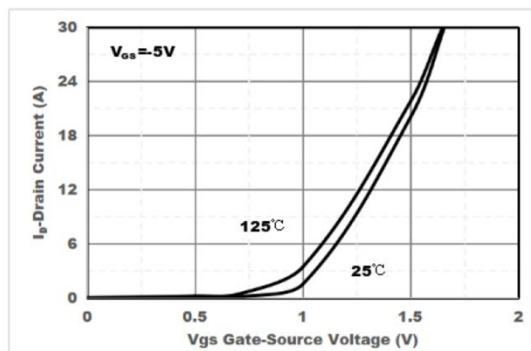


Figure2. Transfer Characteristics

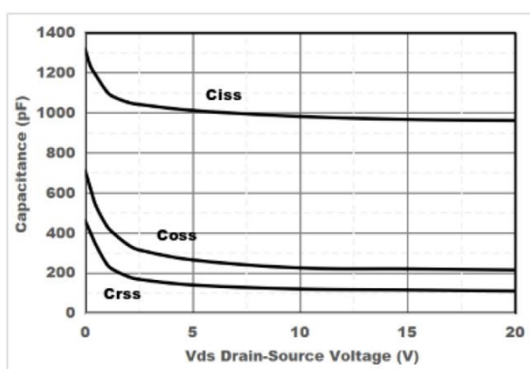


Figure3. Capacitance Characteristics

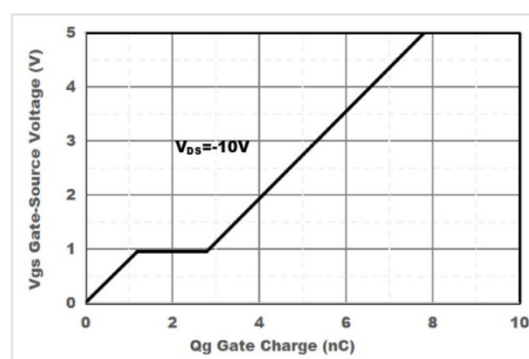


Figure4. Gate Charge

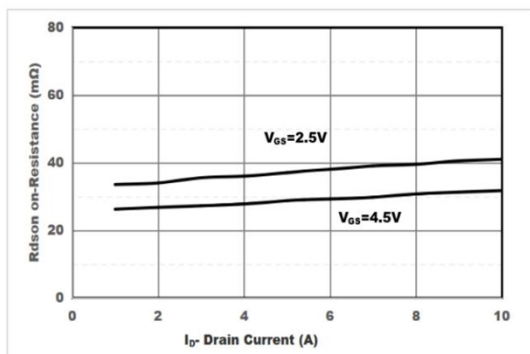


Figure5. Drain-Source on Resistance

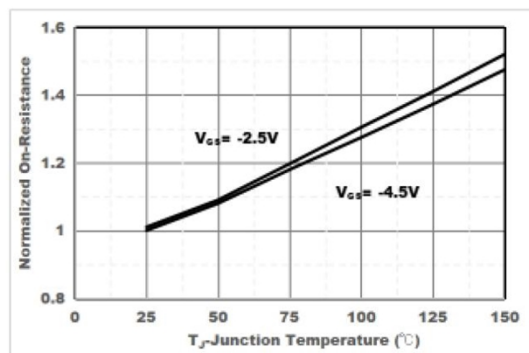


Figure6. Drain-Source on Resistance

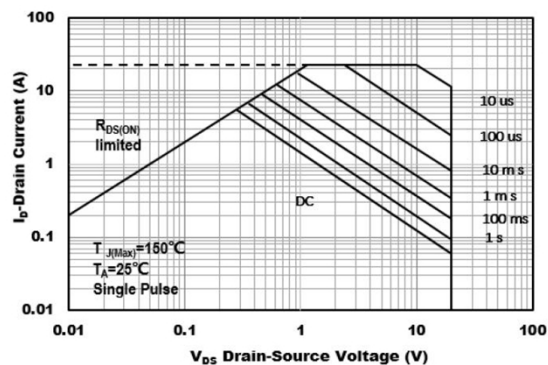


Figure7. Safe Operation Area

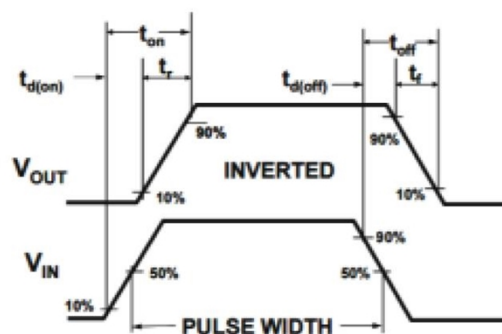
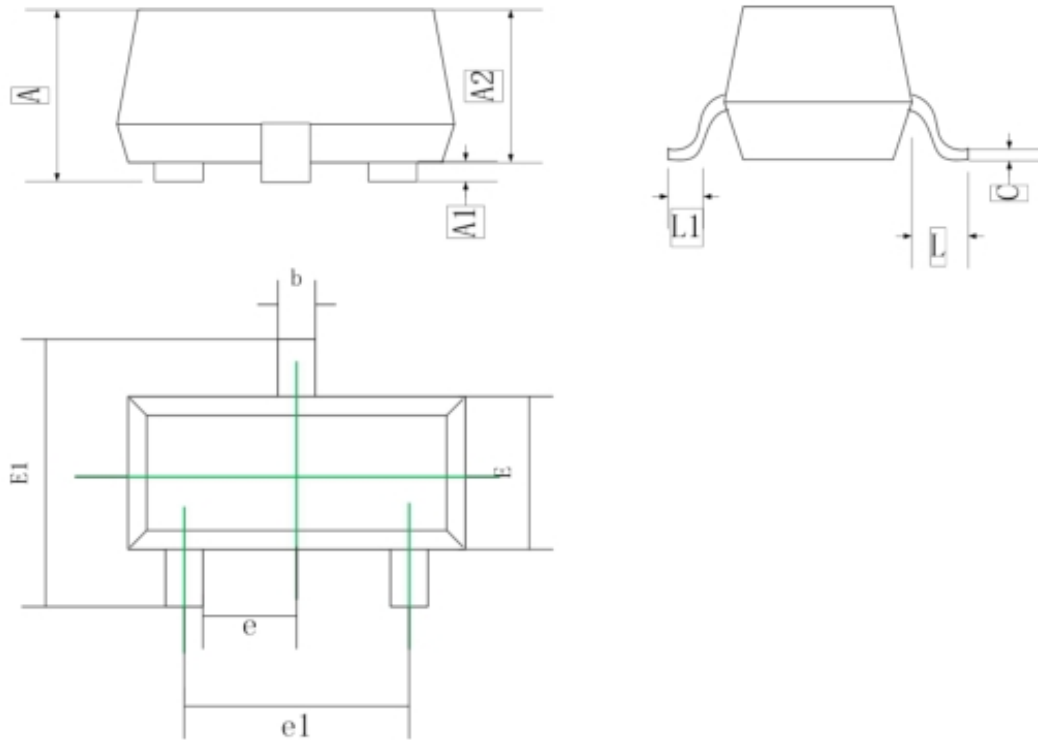


Figure8. Switching wave

SOT-23-3L Package Information



Symbol	Dimensions in millimeters	
	Min.	Max.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.820	3.020
E	1.500	1.700
E1	2.650	2.950
e	0.950 Typ.	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°