EVVOSEMI®
THINK CHANGE DO

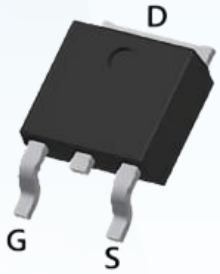
ESD TVS MOS LDO Diode Sensor DC-DC

Product Specification

Domestic Part Number	FQD19N10L
Overseas Part Number	FQD19N10L
Equivalent Part Number	FQD19N10L

V_{DSS}（V）	$R_{DS\ (ON)}$	$I_{D(A)}$
100	65mΩ(Typ)@VGS=10V	20
	75mΩ(Typ)@VGS=4.5V	

Pin Description

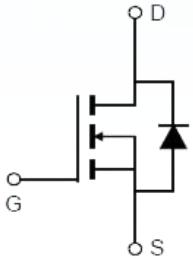


TO-252

FEATURE:

- The FQD19N10L is the high cell density trenched N-ch MOSFETS, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

★ Super Low Gate Charge
★ Green Device Available
★ Excellent Cdv/dt effect decline
★ Advanced high cell density Trench technology



Absolute Maximum Ratings

Symbol	Parameter		Rating	Units
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current($V_{GS=}$ -4.5V)	T_c=25°C	20	A
		T_c=70°C	12	
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_{DM}	Pulsed Drain Current		20	A
P_D	Maximum Power Dissipation	T_c=25°C	41.7	W
		T_c=70°C	---	
E_{AS}	Avalanche Energy, Single Pulsed		4.1	mJ
RθJC	Thermal Resistance-Junction to Case		3.0	°C/W
RθJA	Thermal Resistance-Junction to Ambient		50	°C/W

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250uA	100	---	---	V
VGS(th)	Gate threshold voltage	VDS=VGS,ID=250uA	1.2	1.6	2.5	V
RDS(ON)	Drain-Source On-state Resistance	VGS=10V , ID=5A	---	65	90	mΩ
		VGS=4.5V , ID=3A	---	75	105	mΩ
IGSS	Gate-source leakage current	VGS=±20V , VDS=0V	---	---	±100	nA
IDSS	Zero gate voltage drain current	VDS=100V,VGS=0V,TJ=25℃	---	---	1	μA
		TJ=55℃	---	---	---	
Dynamic Characteristic						
Ciss	Input Capacitance	VGS=0V, VDS=15V, Frequency=1.0MHz	---	1220	---	pF
Coss	Output Capacitance		---	53	---	
Crss	Reverse Transfer Capacitance		---	43	---	
QG	Gate Total Charge	VDS=50V, VGS=10V, IDS=5A	---	20.6	---	nC
Qgs	Gate-Source charge		---	4	---	
Qgd	Gate-Drain charge		---	3.7	---	
td(on)	Turn-on delay time	VDD=50V , VGS=10V , RG=3Ω, ID=5A	---	4.7	---	ns
tr	Turn-on Rise Time		---	21	---	
td(off)	Turn-off Delay Time		---	20	---	
tf	Turn-off Fall Time		---	16	---	
RG	Gate Resistance	VGS=0V,VDS=0V,F=1MHz	---	1.3	---	Ω
Diode Characteristics						
IS	Diode Forward Current		--	--	20	A
ISM	Maximum Pulsed Drain to Source Diode Forward Current		---	--	---	A
VSD	Diode Forward Voltage	VGS=0V , IS=1A , TJ=25℃	---	---	1.2	V
trr	Reverse Recovery Time	ISD=4.1A, dISD/dt=-100A/μs	---	---	---	ns
Qrr	Reverse Recovery Charge		---	---	---	nC

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

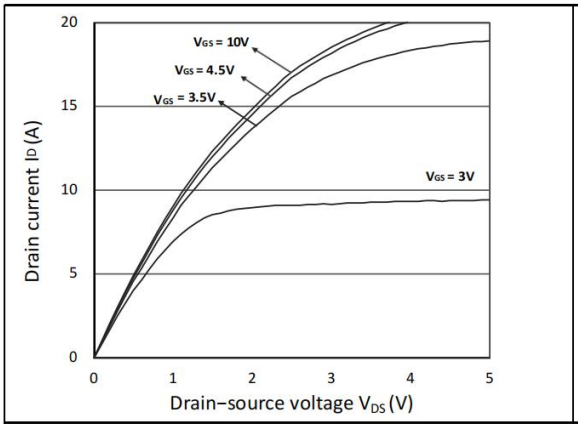


Figure 1. Output Characteristics

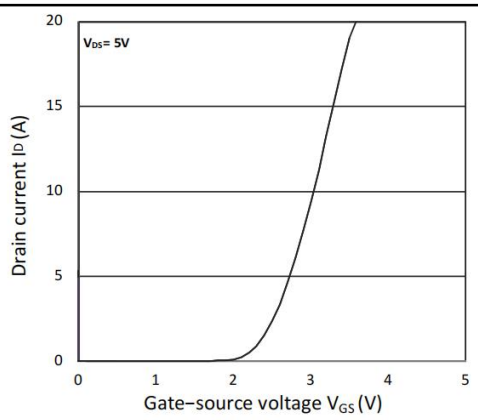


Figure 2. Transfer Characteristics

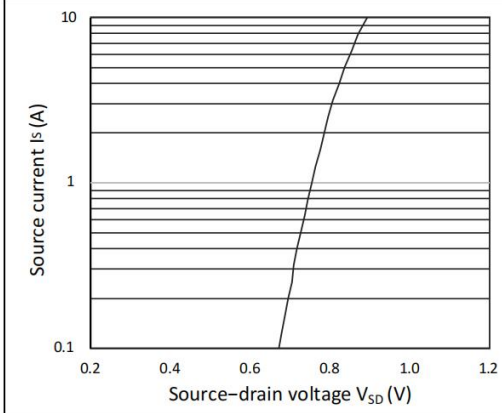


Figure 3. Forward Characteristics of Reverse

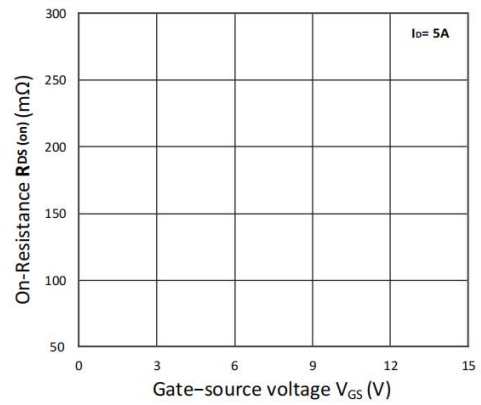


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

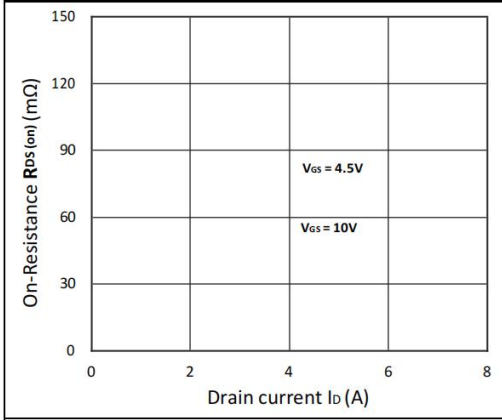


Figure 5. $R_{DS(ON)}$ vs. I_D

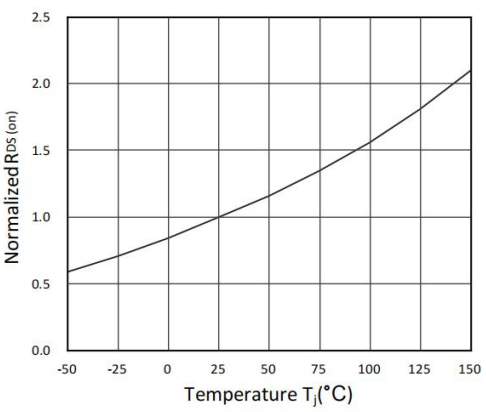


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

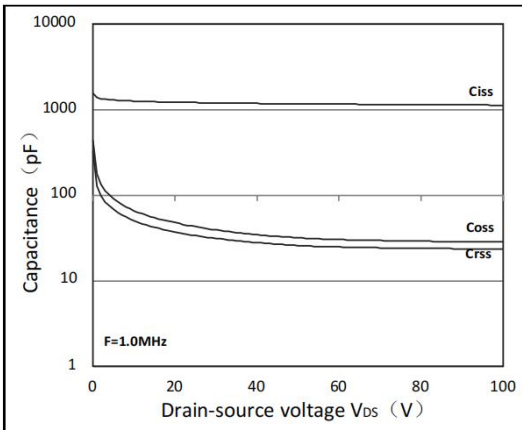


Figure 7. Capacitance Characteristics

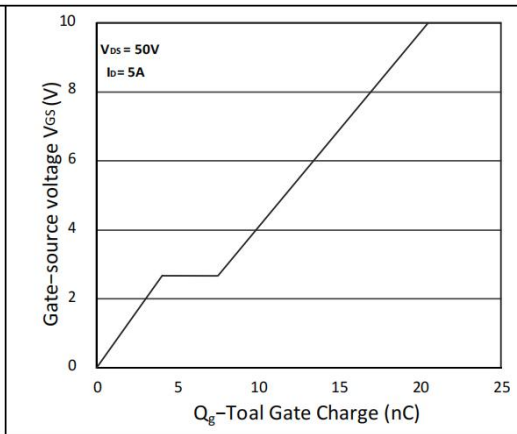


Figure 8. Gate Charge Characteristics

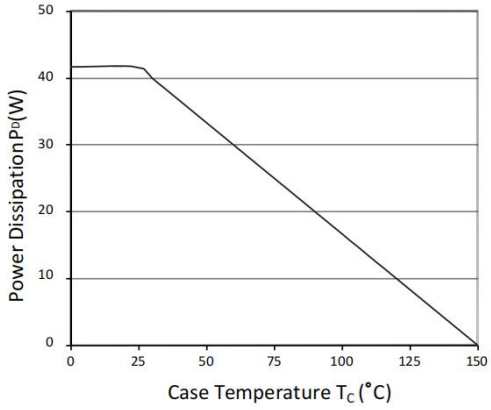


Figure 9. Power Dissipation

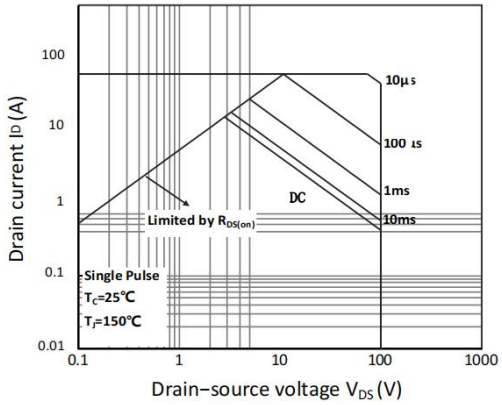


Figure10. Safe Operating Area

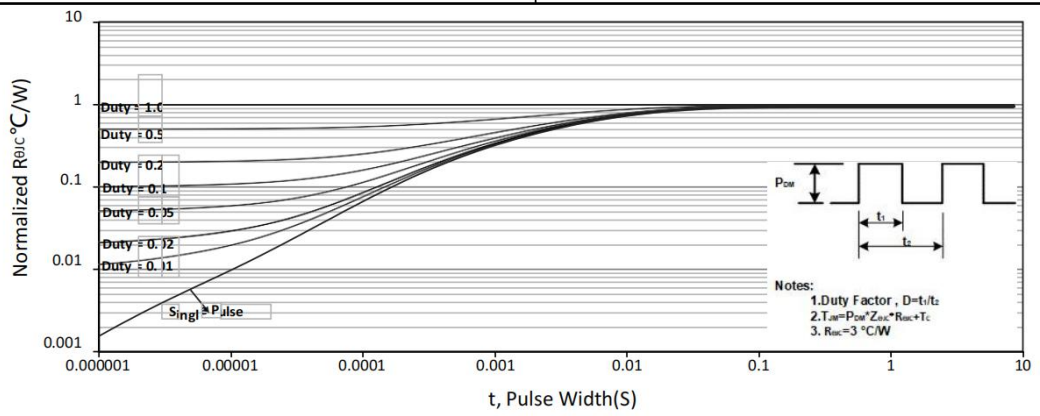
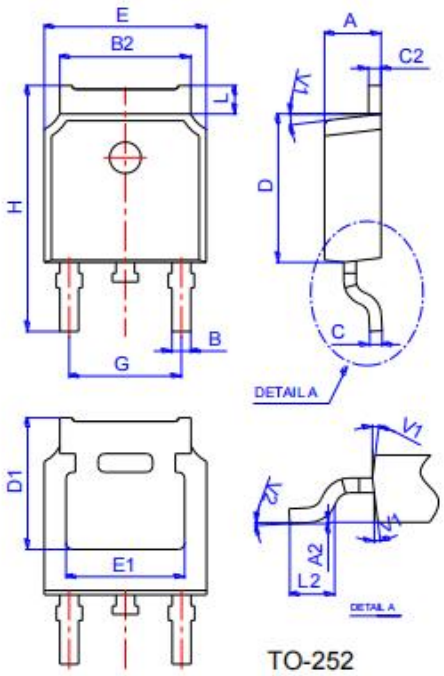


Figure 11. Normalized Maximum Transient Thermal Impedance

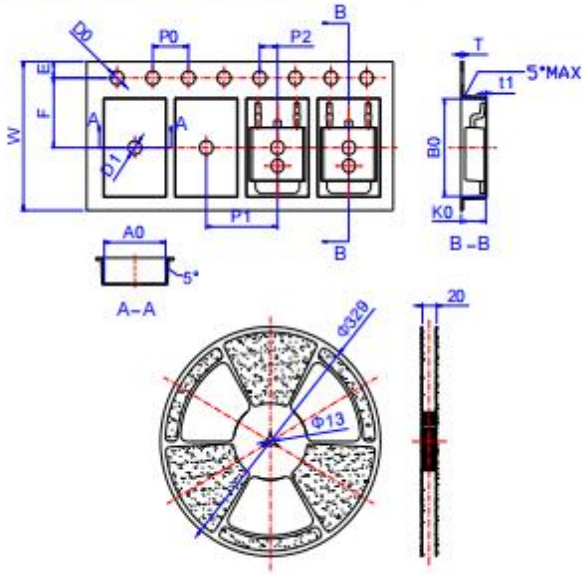
Package Mechanical Data:TO-252-3L



TO-252

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Reel Spectification-TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	15.90	16.00	16.10	0.626	0.630	0.634
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
D0	1.40	1.50	1.60	0.055	0.059	0.063
D1	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	6.85	6.90	7.00	0.270	0.271	0.276
B0	10.45	10.50	10.60	0.411	0.413	0.417
K0	2.68	2.78	2.88	0.105	0.109	0.113
T	0.24		0.27	0.009		0.011
t1	0.10			0.004		
10P0	39.80	40.00	40.20	1.567	1.575	1.583

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