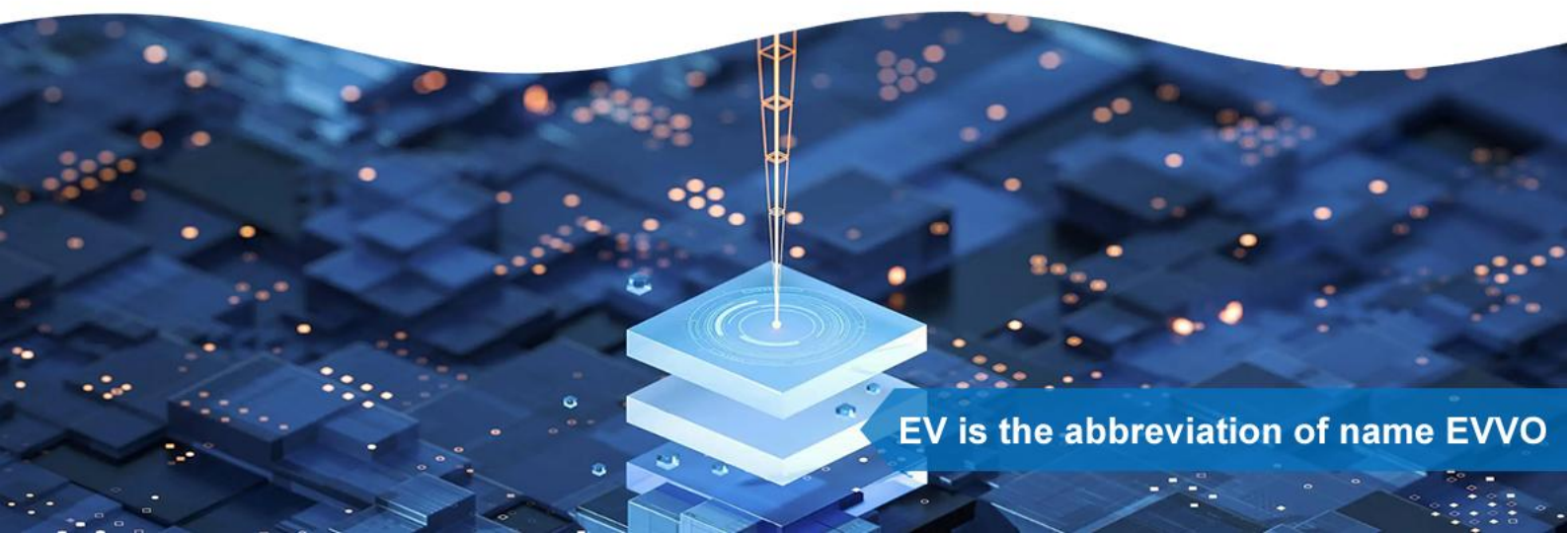
EVVOSEMI®
THINK CHANGE DO

ESD TVS MOS LDO Diode Sensor DC-DC

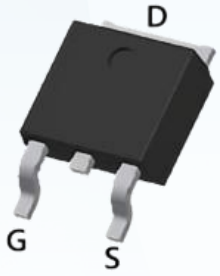
Product Specification

Domestic Part Number	FDD6685
Overseas Part Number	FDD6685
Equivalent Part Number	FDD6685



VDSS（V）	RDS (ON)	ID(A)
-30	14.5mΩ(Typ)@VGS=-10V	-50
	22mΩ(Typ)@VGS=-4.5V	

Pin Description

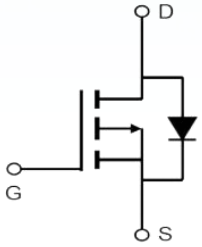


TO-252

FEATURE:

• The FDD6685 is the high cell density trenched P-ch MOSFETS, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

★ 100% EAS Guaranteed
★ Green Device Available
★ Super Low Gate Charge
★Excellent CdV/dt effect decline
★Advanced high cell density Trench technology



Absolute Maximum Ratings

Symbol	Parameter		Rating	Units
VDSS	Drain-Source Voltage		-30	V
VGSS	Gate-Source Voltage		±20	V
ID	Continuous Drain Current(VGS= -4.5V)	TC=25°C	-50	A
		TC=70°C	-32	
TJ	Maximum Junction Temperature		150	°C
TSTG	Storage Temperature Range		-55 to 150	°C
IDM	Pulsed Drain Current		-150	A
PD	Maximum Power Dissipation	TC=25°C	45	W
		Tc=70°C	---	
EAS	Avalanche Energy, Single Pulsed		125	mJ
RθJC	Thermal Resistance-Junction to Case		2.8	°C/W
RθJA	Thermal Resistance-Junction to Ambient		62	°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	-30	---	---	V
VGS(th)	Gate threshold voltage	VDS=VGS,ID=250uA	-1.0	-1.5	-2.5	V
RDS(ON)	Drain-Source On-state Resistance	VGS=-10V , ID=-9A	---	18	25	mΩ
		VGS=-4.5V , ID=-5A	---	27	38	mΩ
IGSS	Gate-source leakage current	VGS=±20V , VDS=0V	---	---	±100	nA
IDSS	Zero gate voltage drain current	VDS=-30V,VGS=0V,TJ=25℃	---	---	-1	μA
		TJ=55℃	---	---	---	
Dynamic Characteristic						
Ciss	Input Capacitance	VGS=0V, VDS=-15V, Frequency=1.0MHz	---	2215	---	pF
Coss	Output Capacitance		---	310	---	
Crss	Reverse Transfer Capacitance		---	237	---	
QG	Gate Total Charge	VDS=-15V, VGS=-4.5V, IDS=-15A	---	22	---	nC
Qgs	Gate-Source charge		---	8.7	---	
Qgd	Gate-Drain charge		---	7.2	---	
td(on)	Turn-on delay time	VDD=-15V , VGS=-10V , RG=3.3Ω, ID=-15A	---	8	---	ns
tr	Turn-on Rise Time		---	73.7	---	
td(off)	Turn-off Delay Time		---	61.8	---	
tf	Turn-off Fall Time		---	24.4	---	
RG	Gate Resistance	VGS=0V,VDS=0V,F=1MHz	---	9	---	Ω
Diode Characteristics						
VSD	Diode Forward Voltage	VGS=0V , IS=1A , TJ=25℃	---	---	-1.2	V
IS	Maximum Continuous Drain to Source Diode Forward Current		---	---	-50	A
ISM	Maximum Pulsed Drain to Source Diode Forward Current		---	---	-150	A
trr	Reverse Recovery Time	ISD=-15A, dISD/dt=-100A/μs	---	19	---	ns
Qrr	Reverse Recovery Charge		---	9	---	nC

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

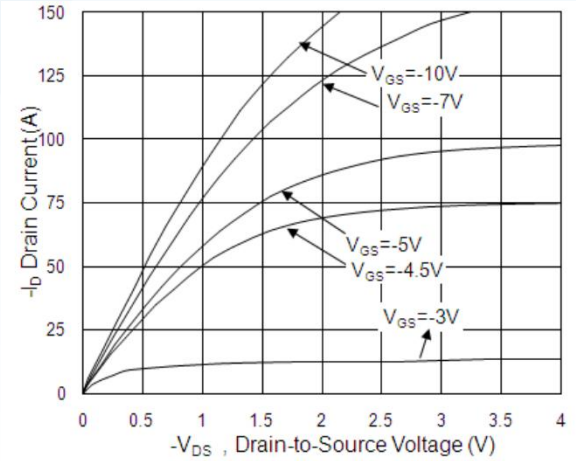


Fig.1 Typical Output Characteristics

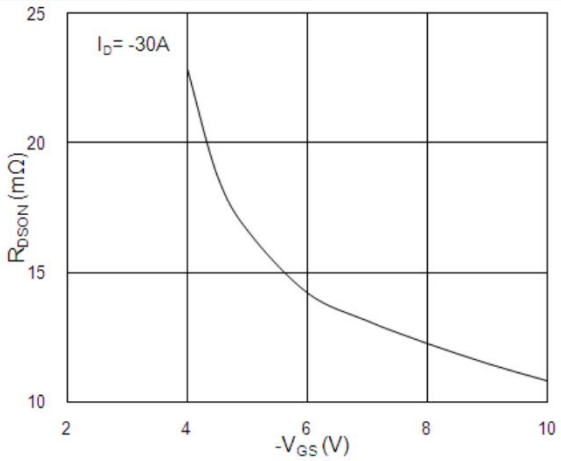


Fig.2 On-Resistance vs. G-S Voltage

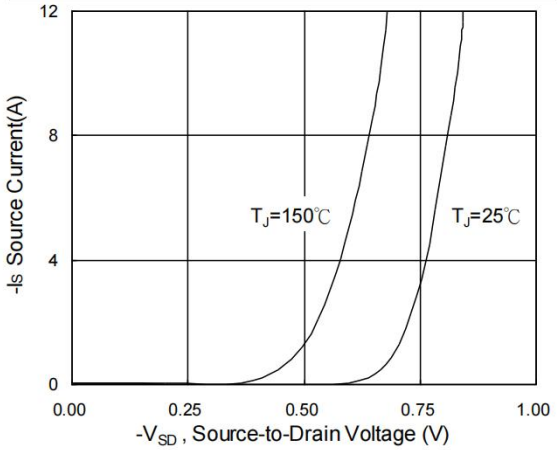


Fig.3 Forward Characteristics of Reverse

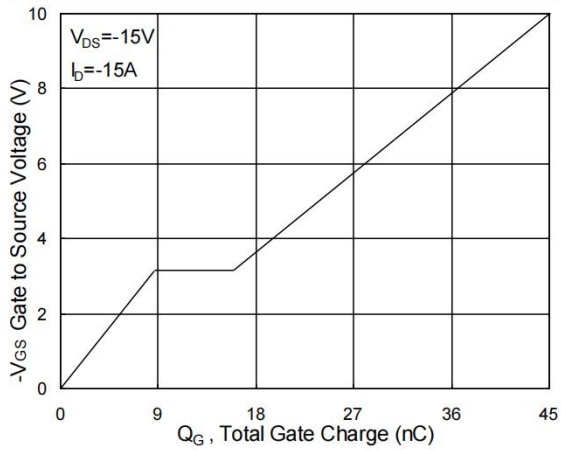


Fig.4 Gate-charge Characteristics

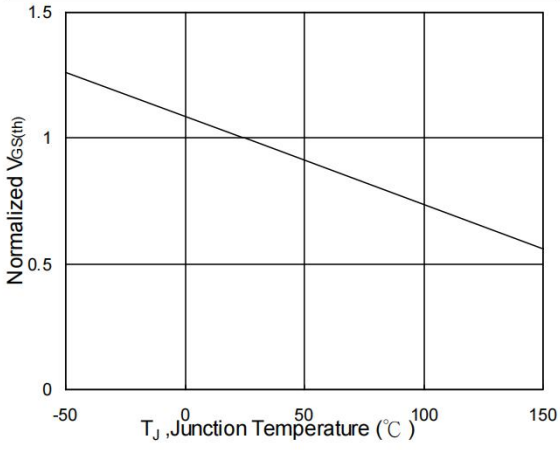


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

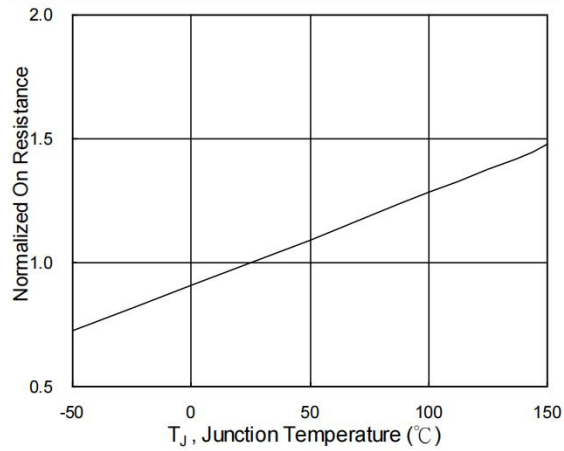


Fig.6 Normalized R_{DSON} vs. T_J

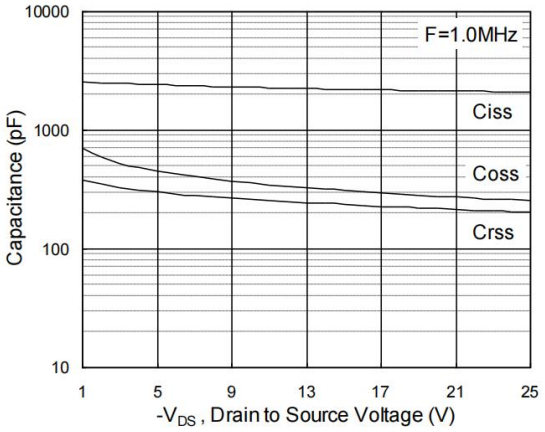


Fig.7 Capacitance

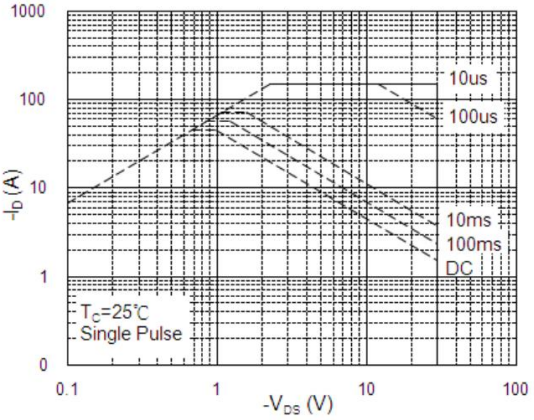


Fig.8 Safe Operating Area

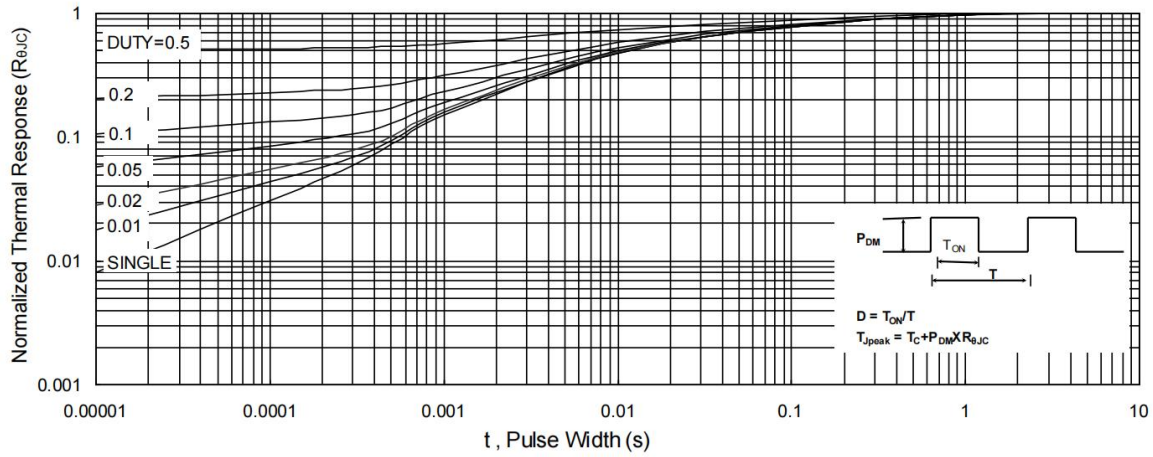


Fig.9 Normalized Maximum Transient Thermal Impedance

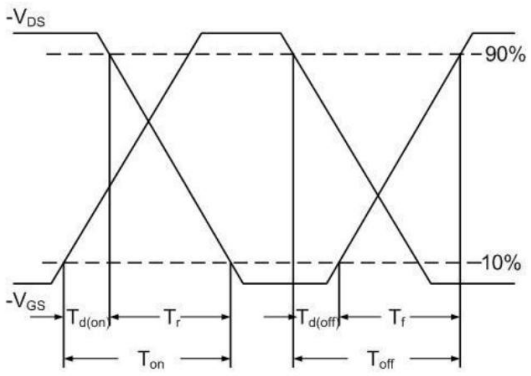


Fig.10 Switching Time Waveform

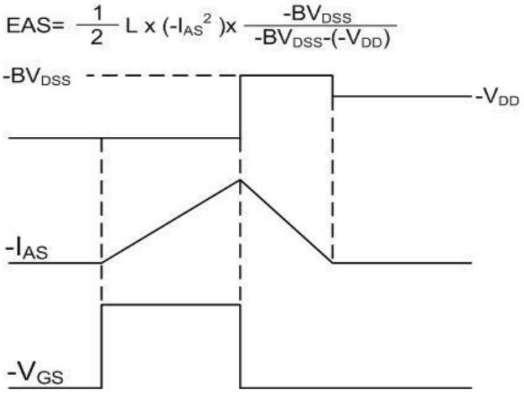
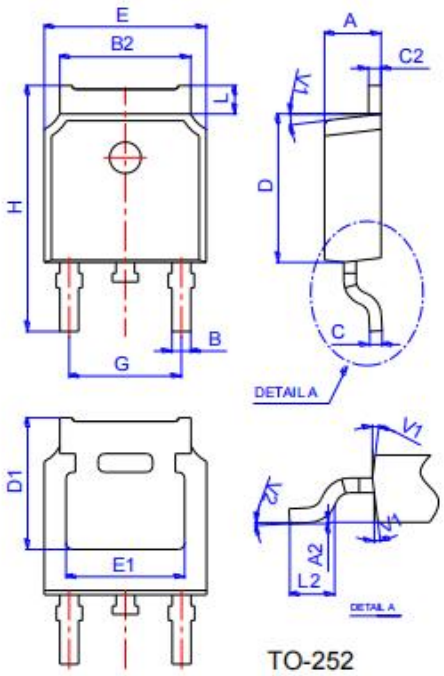


Fig.11 Unclamped Inductive Switching Waveform

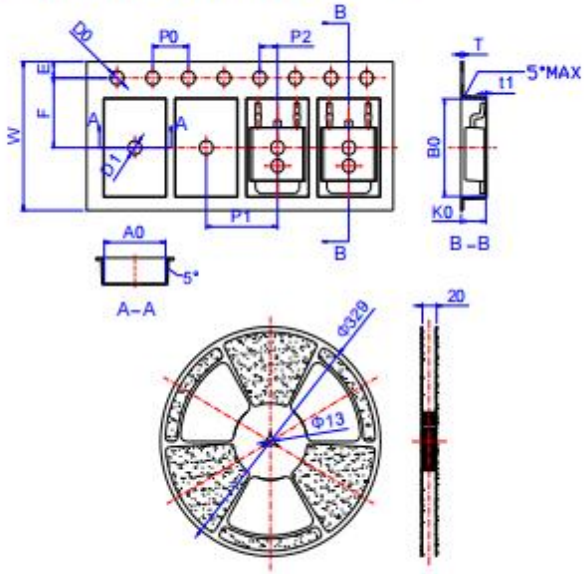
Package Mechanical Data:TO-252-3L



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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