EVVOSEMI®
THINK CHANGE DO

ESD TVS MOS LDO Diode Sensor DC-DC

Product Specification

Domestic Part Number	FDD8586
Overseas Part Number	FDD8586
Equivalent Part Number	FDD8586

V_{DSS}（V）	$R_{DS\ (ON)}$	$I_{D(A)}$
20	3.7mΩ(Typ)@VGS=4.5V	80
	6.5mΩ(Typ)@VGS=2.5V	

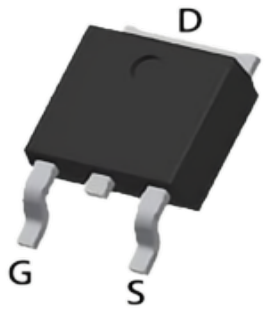
FEATURE:

- The FDD8586 is the high cell density trenched N-ch MOSFETS, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

APPLICATIONS:

- Load Switch
- solar road lights

Pin Description



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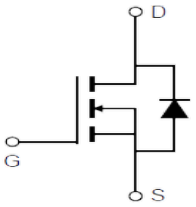


Absolute Maximum Ratings

Symbol	Parameter		Rating	Units
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current(V_{GS}= -4.5V)	T_A=25°C	80	A
		T_A=70°C	35	
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_{DM}	Pulsed Drain Current		200	A
P_D	Maximum Power Dissipation	T_A=25°C	58	W
		T_A=70°C	----	
E_{AS}	Avalanche Energy, Single Pulsed		58	mJ
RθJC	Thermal Resistance-Junction to Case		---	°C/W
RθJA	Thermal Resistance-Junction to Ambient		2.6	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	20	---	---	V
$V_{GS(th)}$	Gate threshold voltage	V_{DS}=V_{GS},I_D=250uA	0.4	0.6	1.1	V
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=4.5V , I_D=30A	---	3.7	5	mΩ
		V_{GS}=2.5V , I_D=20A	---	6.5	9	mΩ
I_{GSS}	Gate-source leakage current	V_{GS}=±12V , V_{DS}=0V	---	---	±100	A
I_{DSS}	Zero gate voltage drain current	V_{DS}=20V,V_{GS}=0V,T_J=25℃	---	---	1	μA
		T_J=55℃	---	---	---	
Dynamic Characteristic						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=10V, Frequency=1.0MHz	---	2500	---	pF
C_{oss}	Output Capacitance		---	407	---	
C_{rss}	Reverse Transfer Capacitance		---	386	---	
Q_G	Gate Total Charge	V_{DS}=10V, V_{GS}=4.5V I_{DS}=30A	---	32	---	nC
Q_{gs}	Gate-Source charge		---	3	---	
Q_{gd}	Gate-Drain charge		---	11	---	
$t_{d(on)}$	Turn-on delay time	V_{DD}=10V , V_{GS}=4.5V , R_G=3.3Ω, I_D=10A	---	17	---	ns
t_r	Turn-on Rise Time		---	49	---	
$t_{d(off)}$	Turn-off Delay Time		---	74	---	
t_f	Turn-off Fall Time		---	26	---	
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	---	---	---	Ω
Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-1A , T_J=25℃	---	---	1.2	V
t_{rr}	Reverse Recovery Time	I_{SD}=-20A, dI_{SD}/dt=-100A/μs	---	---	---	ns
Q_{rr}	Reverse Recovery Charge		---	---	---	nC

Typical Electrical and Thermal Characteristics

Figure1: Output Characteristics

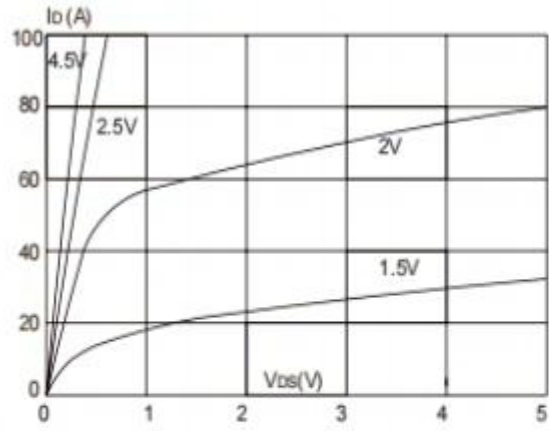


Figure 2: Typical Transfer Characteristics

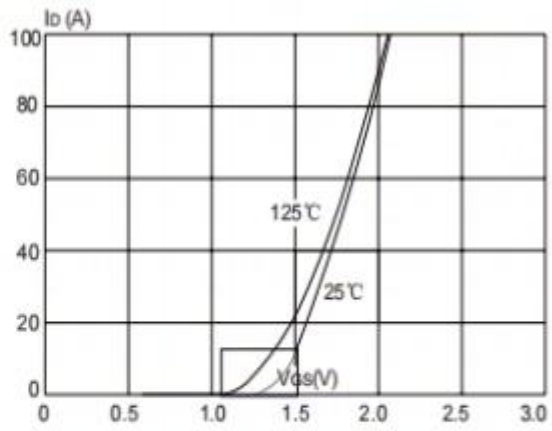


Figure 3: On-resistance vs. Drain Current

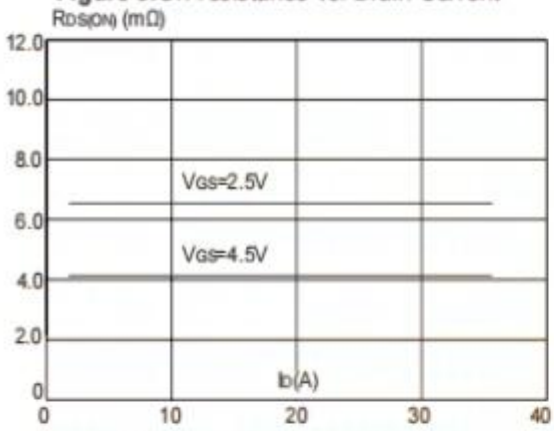


Figure 4: Body Diode Characteristics

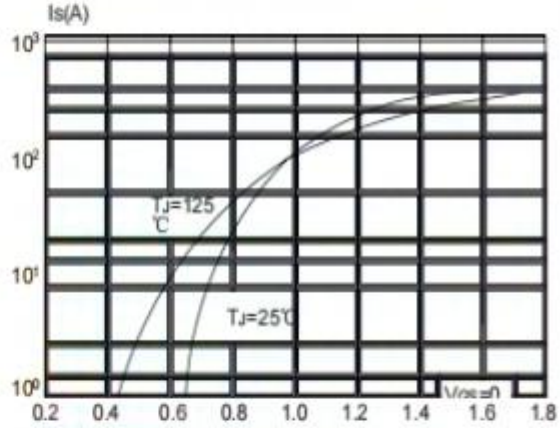


Figure 5: Gate Charge Characteristics

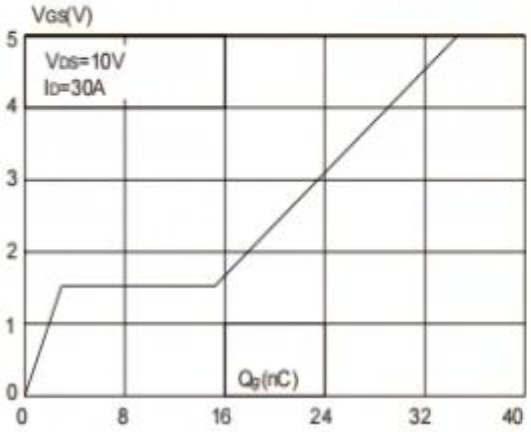


Figure 6: Capacitance Characteristics

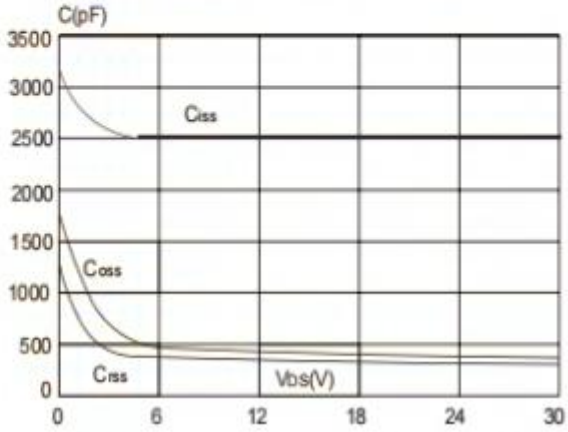


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

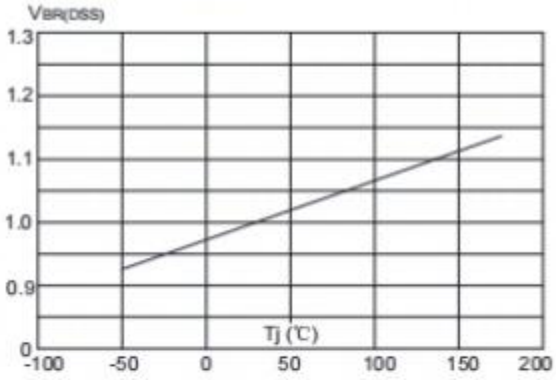


Figure 8: Normalized on Resistance vs. Junction Temperature

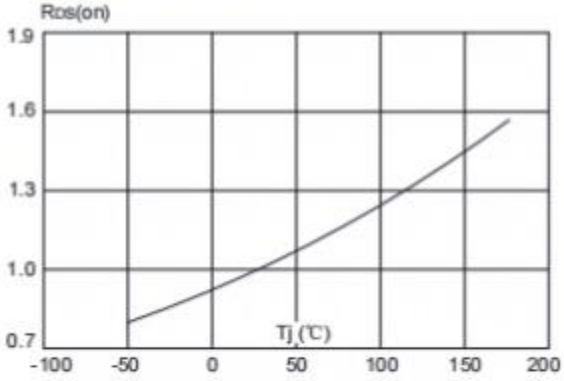


Figure 9: Maximum Safe Operating Area

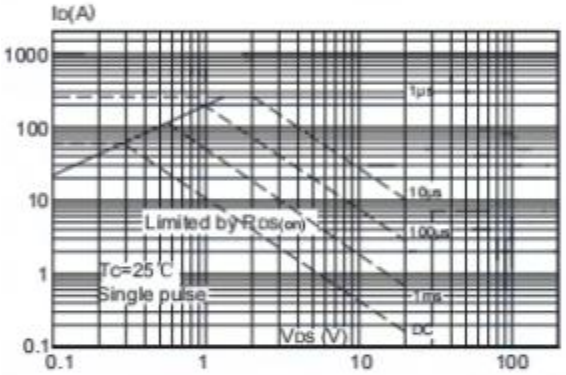


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

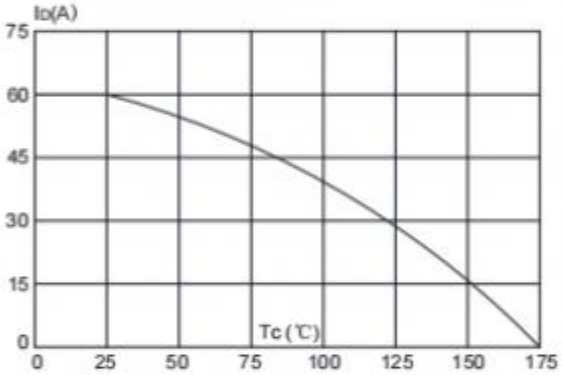
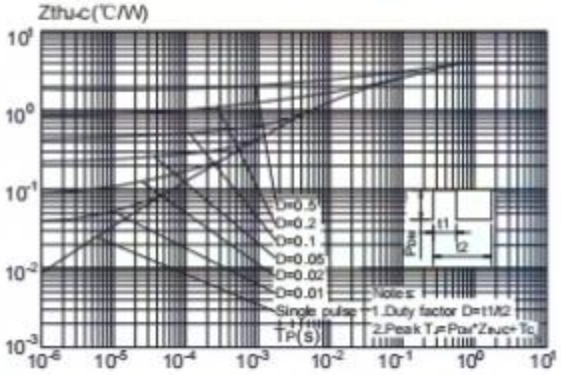
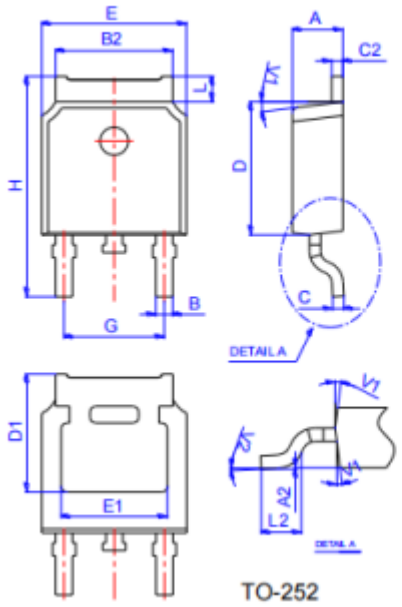


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Package Mechanical Data:TO-252-3L



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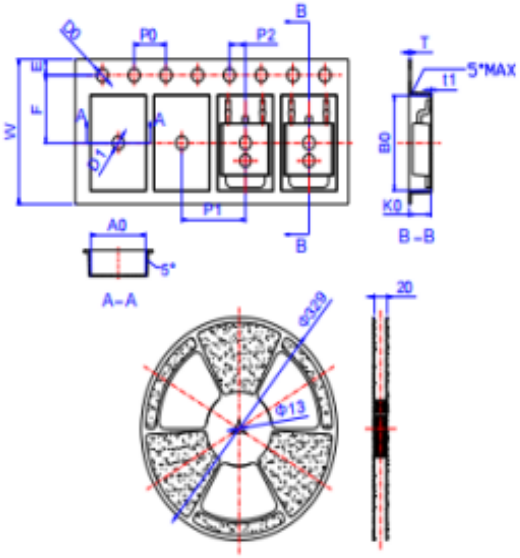
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
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 Specification-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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