

EVVOSEMI[®]

THINK CHANGE DO



ESD



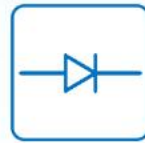
TVS



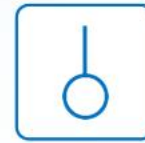
MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	FDD8780
▶ Overseas	Part Number	FDD8780
▶ Equivalent	Part Number	FDD8780

EV is the abbreviation of name EVVO

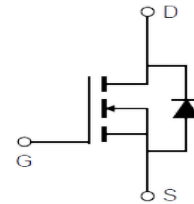
V _{DSS} (V)	R _{DS (ON)}	I _{D(A)}
20	6.3mΩ(Typ)@V _{GS} =4.5V	60
	8.8mΩ(Typ)@V _{GS} =2.5V	

FEATURE:

- The FDD8780 is the high cell density trench N-ch MOSFETS, which provide excellent R_{DS(ON)} and gate charge for most of the synchronous buck converter applications.

APPLICATIONS:

- Load Switch
- solar road lights



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	60	A
		T _A =70°C	33	
T _J	Maximum Junction Temperature	150	°C	
T _{STG}	Storage Temperature Range	-55 to 150	°C	
I _{DM}	Pulsed Drain Current	210	A	
P _D	Maximum Power Dissipation	T _A =25°C	35	W
		T _A =70°C	---	
E _{AS}	Avalanche Energy, Single Pulsed	36	mJ	
R _{θJC}	Thermal Resistance-Junction to Case	---	°C/W	
R _{θJA}	Thermal Resistance-Junction to Ambient	4.8	°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 =250μA	20	---	---	V
V _{GS(th)}	Gate threshold voltage	V _{DS} =V _{GS} , I _D =250μA	0.4	0.6	1.1	V
R _{DS(ON)}	Drain-Source On-state Resistance	V _{GS} =4.5V, I _D =25A	---	6.3	8	mΩ
		V _{GS} =2.5V, I _D =10A	---	8.8	13	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°C	---	---	1	μA
		T _J =55°C	---	---	---	
Dynamic Characteristic						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, Frequency=1.0MHz	---	1458	---	pF
C _{oss}	Output Capacitance		---	238	---	
C _{rss}	Reverse Transfer Capacitance		---	212	---	
Q _G	Gate Total Charge	V _{DS} =15V, V _{GS} =4.5V, I _{DS} =25A	---	19	---	nC
Q _{gs}	Gate-Source charge		---	3	---	
Q _{gd}	Gate-Drain charge		---	6.4	---	
t _{d(on)}	Turn-on delay time	V _{DD} =10V, V _{GS} =4.5V, R _G =3.3Ω, I _D =10A	---	10	---	ns
t _r	Turn-on Rise Time		---	21	---	
t _{d(off)}	Turn-off Delay Time		---	39	---	
t _f	Turn-off Fall Time		---	19	---	
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°C	---	---	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =-20A, dI _{SD} /dt=-100A/μs	---	25	---	ns
Q _{rr}	Reverse Recovery Charge		---	20	---	nC

Typical Electrical and Thermal Characteristics

Figure 1: Output Characteristics

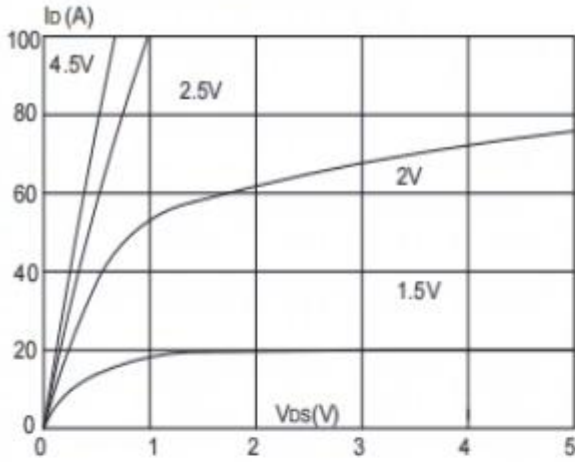


Figure 2: Typical Transfer Characteristics

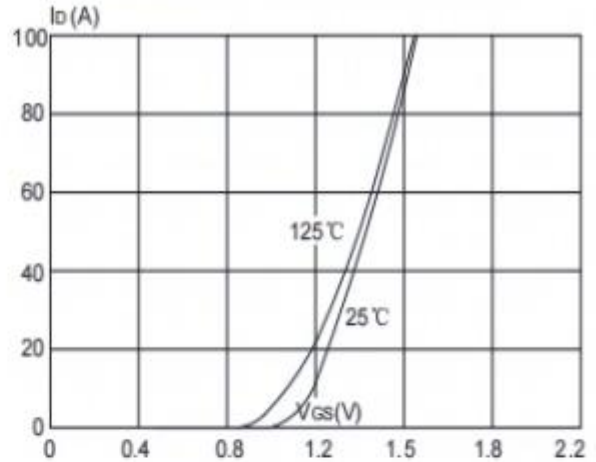


Figure 3: On-resistance vs. Drain Current

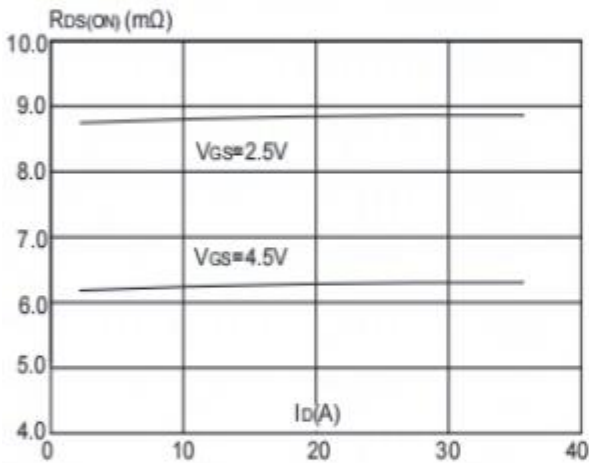


Figure 4: Body Diode Characteristics

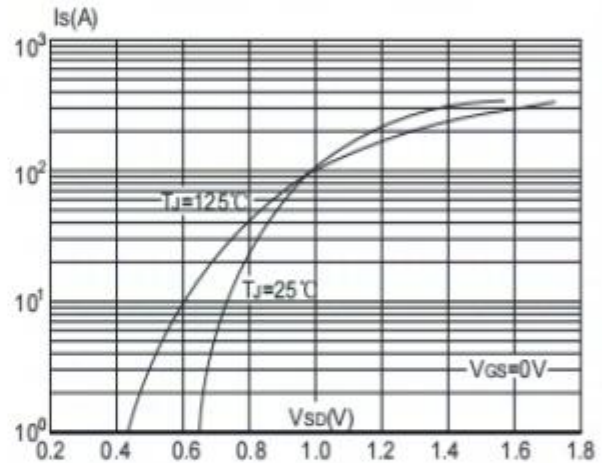


Figure 5: Gate Charge Characteristics

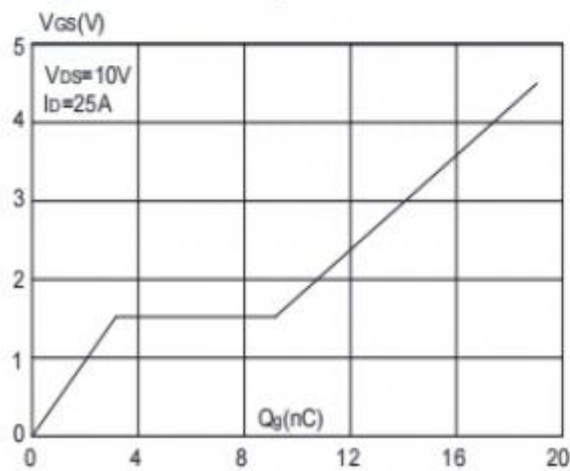


Figure 6: Capacitance Characteristics

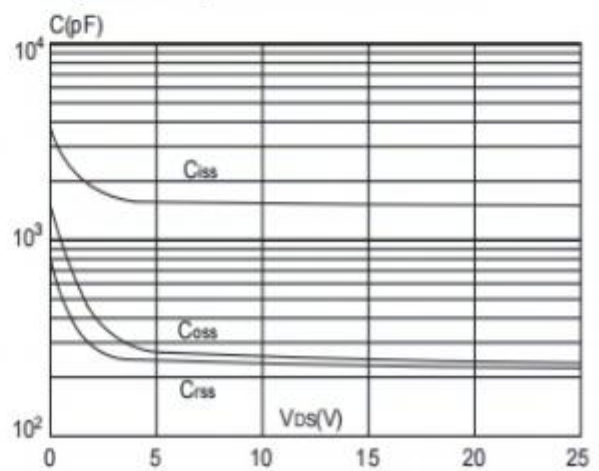


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

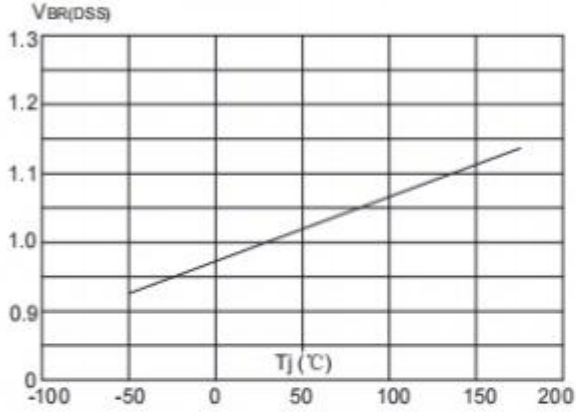


Figure 8: Normalized on Resistance vs. Junction Temperature

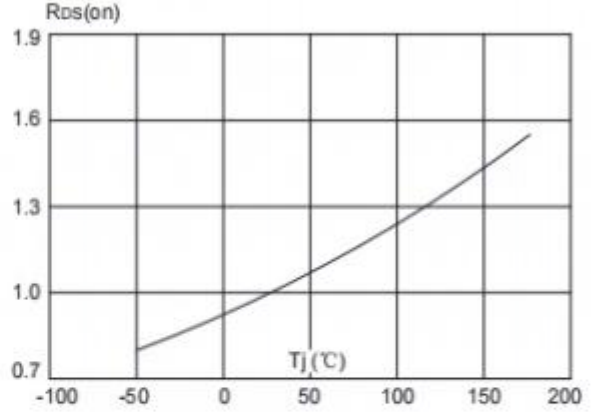


Figure 9: Maximum Safe Operating Area

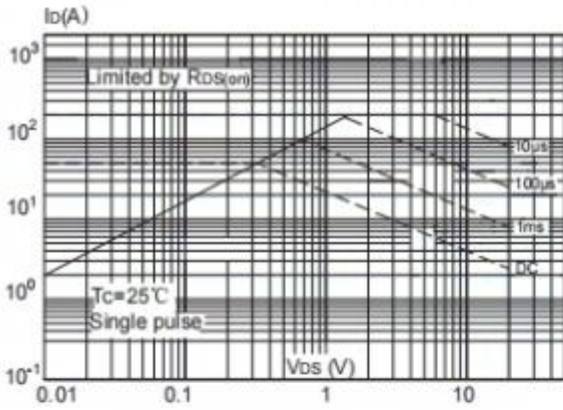


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

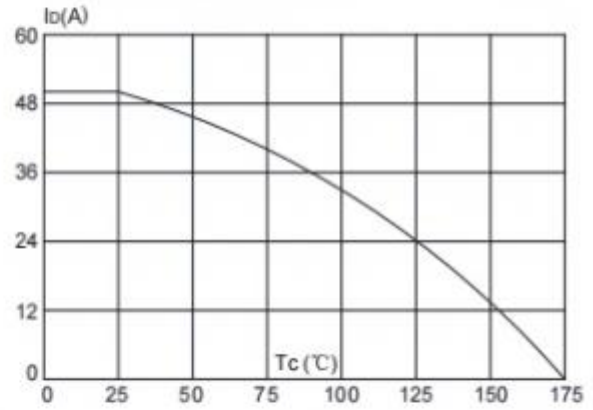
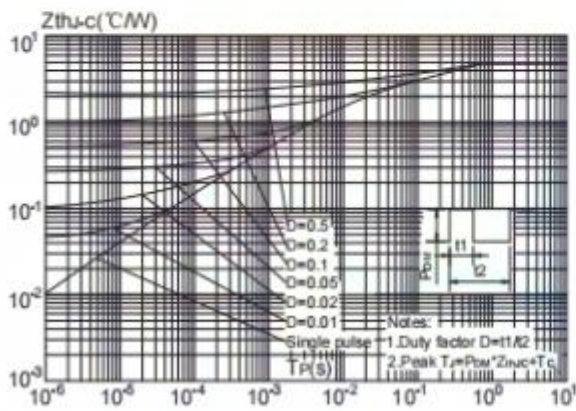
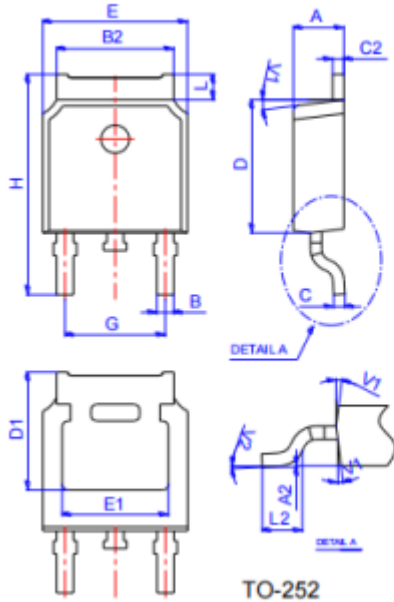


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

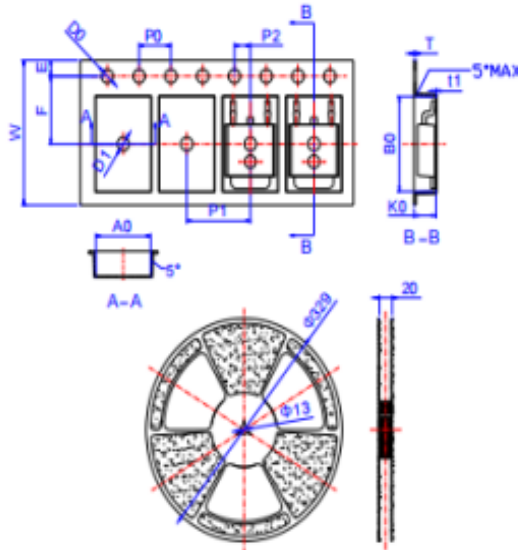


Package Mechanical Data:TO-252-3L



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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