

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	FDD6796A
▶ Overseas	Part Number	FDD6796A
▶ Equivalent	Part Number	FDD6796A

EV is the abbreviation of name EVVO

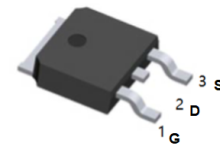
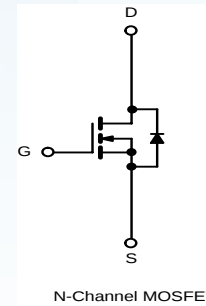
N-Channel 30 V (D-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$R_{DS(on)}$ (m Ω)	I_D (A) ^{a, e}	Q_g (Typ)
30	7 at $V_{GS} = 10$ V	50	25 nC
	9 at $V_{GS} = 4.5$ V	40	

APPLICATIONS

- OR-ing
- Server
- DC/DC



TO-252(DPAK) top view

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, unless otherwise noted)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ($T_J = 175^\circ\text{C}$)	$T_C = 25^\circ\text{C}$	I_D	50	A
	$T_C = 70^\circ\text{C}$		40	
	$T_A = 25^\circ\text{C}$		21.8 ^{b, c}	
	$T_A = 70^\circ\text{C}$		18 ^{b, c}	
Pulsed Drain Current		I_{DM}	200	
Avalanche Current Pulse		I_{AS}	39	mJ
Single Pulse Avalanche Energy		E_{AS}	94.8	
Continuous Source-Drain Diode Current	$T_C = 25^\circ\text{C}$	I_S	50 ^{a, e}	A
	$T_A = 25^\circ\text{C}$		3.13 ^{b, c}	
Maximum Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	100 ^a	W
	$T_C = 70^\circ\text{C}$		75	
	$T_A = 25^\circ\text{C}$		3.25 ^{b, c}	
	$T_A = 70^\circ\text{C}$		2.33 ^{b, c}	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	- 55 to 175	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Typ.	Max.	Unit
Maximum Junction-to-Ambient ^{b, d}	$t \leq 10$ sec	R_{thJA}	32	40	$^\circ\text{C/W}$
Maximum Junction-to-Case	Steady State	R_{thJC}	0.5	0.6	

Notes:

a. Based on $T_C = 25^\circ\text{C}$.

b. Surface mounted on 1" x 1" FR4 board.

c. $t = 10$ sec.

d. Maximum under steady state conditions is 90°C/W .

e. Calculated based on maximum junction temperature. Package limitation current is 90 A.

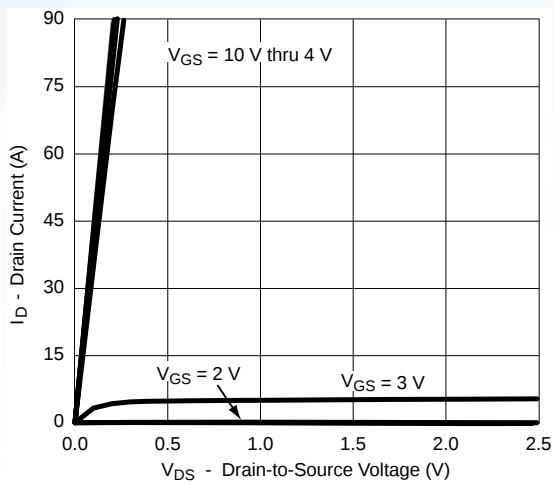
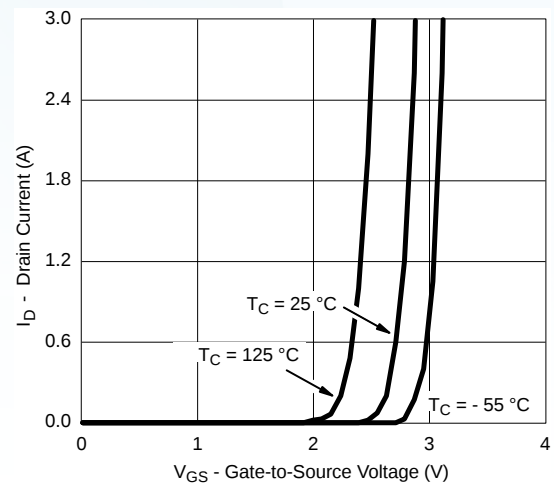
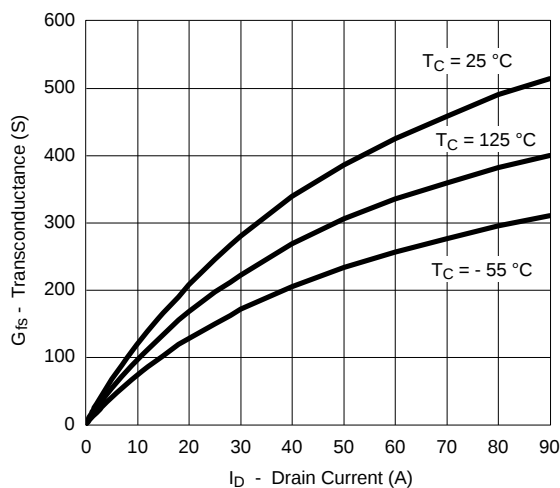
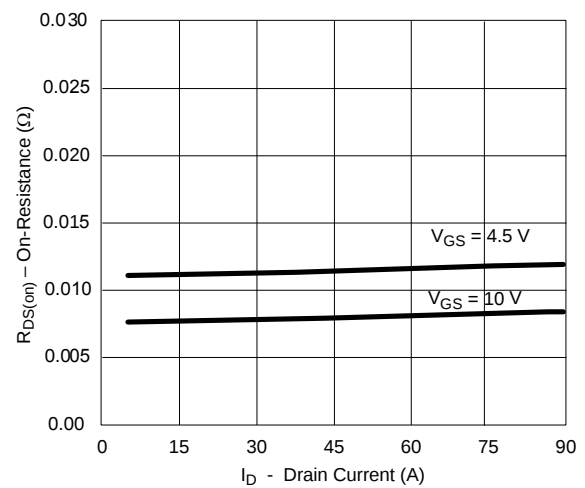
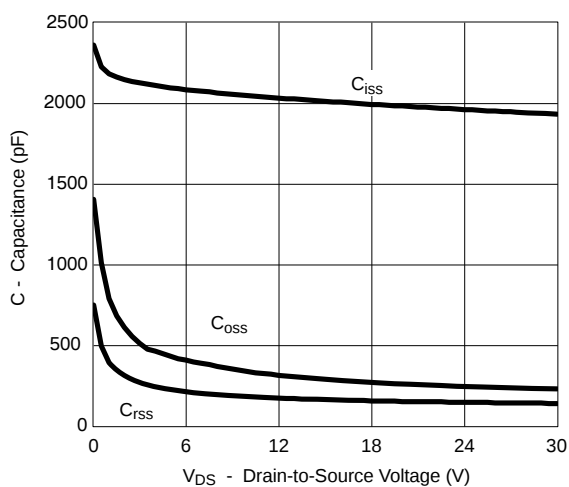
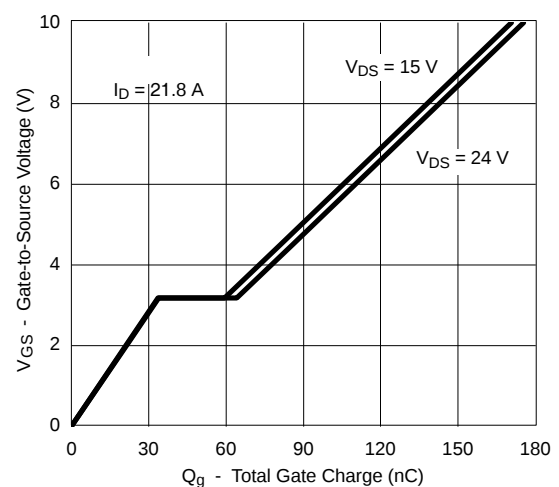
N-Channel 30 V (D-S) MOSFET
SPECIFICATIONS ($T_J = 25\text{ }^{\circ}\text{C}$, unless otherwise noted)

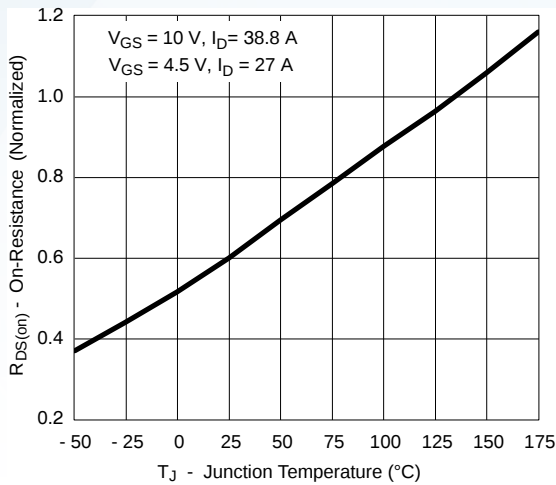
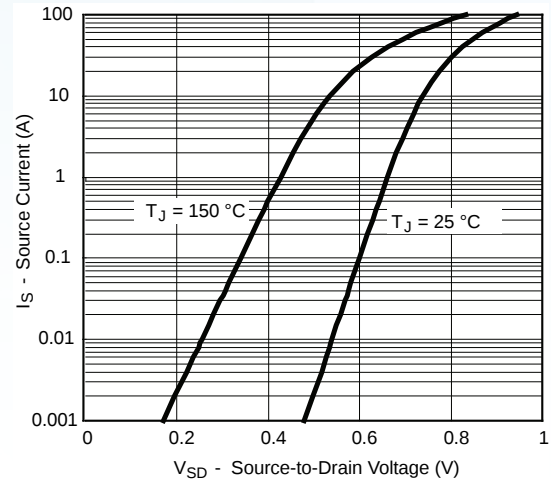
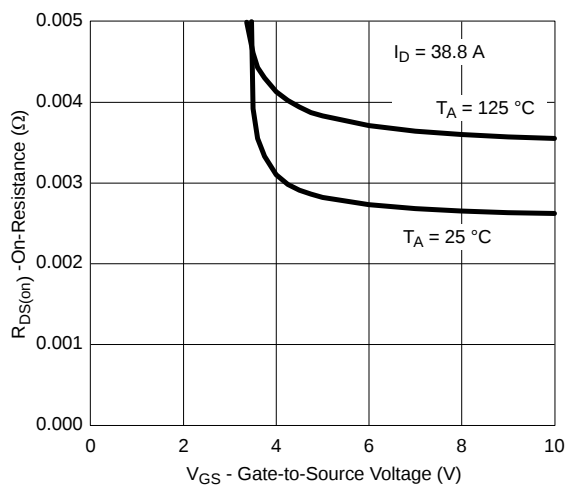
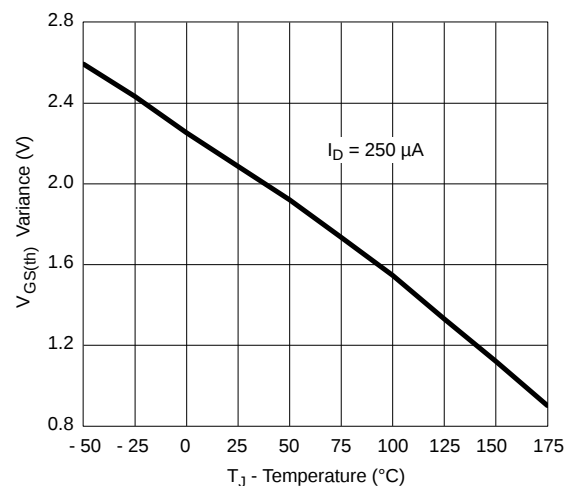
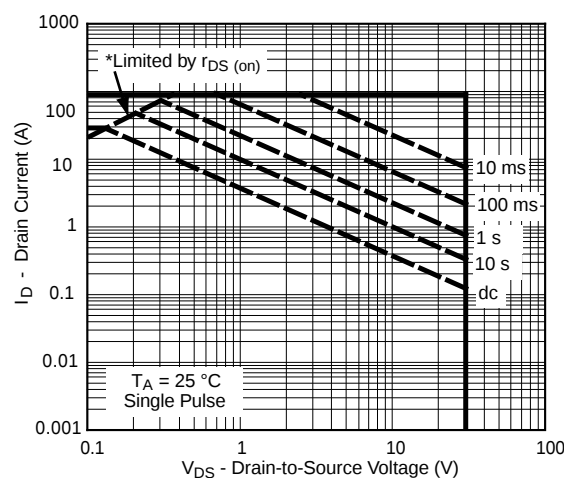
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = 250 μA	30			V
V _{DS} Temperature Coefficient	ΔV _{DS} /T _J	I _D = 250 μA		35		mV/°C
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)} /T _J			- 7.5		
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	1.5		2.0	V
Gate-Source Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μA
		V _{DS} = 30 V, V _{GS} = 0 V, T _J = 55 °C			10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	90			A
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} = 10 V, I _D = 21.8 A		7		mΩ
		V _{GS} = 4.5 V, I _D = 18A		9		
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 21.8 A		160		S
Dynamic ^b						
Input Capacitance	C _{iss}	V _{DS} = 15 V, V _{GS} = 0 V, f = 1 MHz		2201		pF
Output Capacitance	C _{oss}			525		
Reverse Transfer Capacitance	C _{rss}			370		
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 10 V, I _D = 21.8 A		35	45	nC
		V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 21.8 A		25	35	
Gate-Source Charge	Q _{gs}			15		
Gate-Drain Charge	Q _{gd}			20		
Gate Resistance	R _g	f = 1 MHz		1.4	2.1	Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15 V, R _L = 0.625 Ω I _D ≅ 24 A, V _{GEN} = 10 V, R _g = 1 Ω		18	27	ns
Rise Time	t _r			11	17	
Turn-Off Delay Time	t _{d(off)}			70	105	
Fall Time	t _f			10	15	
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15 V, R _L = 0.67 Ω I _D ≅ 22.5 A, V _{GEN} = 4.5 V, R _g = 1 Ω		55	83	
Rise Time	t _r			180	270	
Turn-Off Delay Time	t _{d(off)}			55	83	
Fall Time	t _f			12	18	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I _S	T _C = 25 °C			120	A
Pulse Diode Forward Current ^a	I _{SM}				120	
Body Diode Voltage	V _{SD}	I _S = 22 A		0.8	1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _F = 20 A, di/dt = 100 A/μs, T _J = 25 °C		52	78	ns
Body Diode Reverse Recovery Charge	Q _{rr}			70.2	105	nC
Reverse Recovery Fall Time	t _a			27		ns
Reverse Recovery Rise Time	t _b			25		

Notes:

a. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

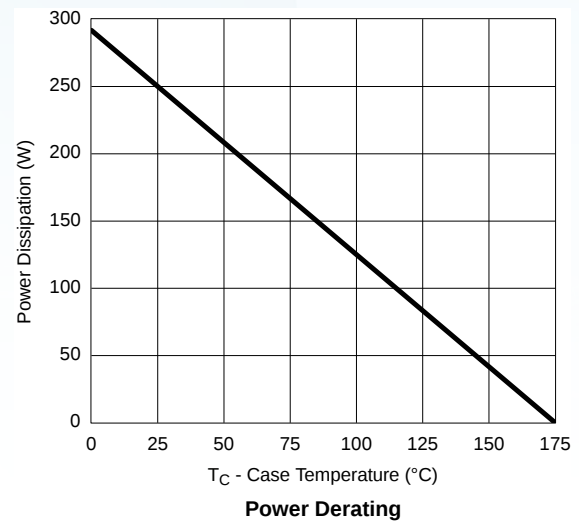
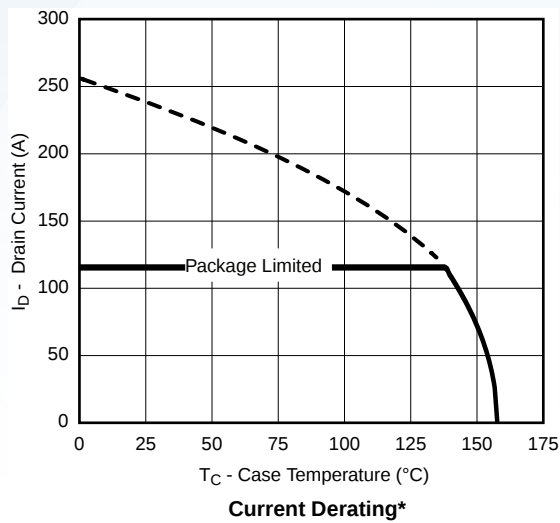
b. Guaranteed by design, not subject to production testing.

N-Channel 30 V (D-S) MOSFET
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

Output Characteristics

Transfer Characteristics

Transconductance

 $R_{DS(on)}$ vs. Drain Current

Capacitance

Gate Charge

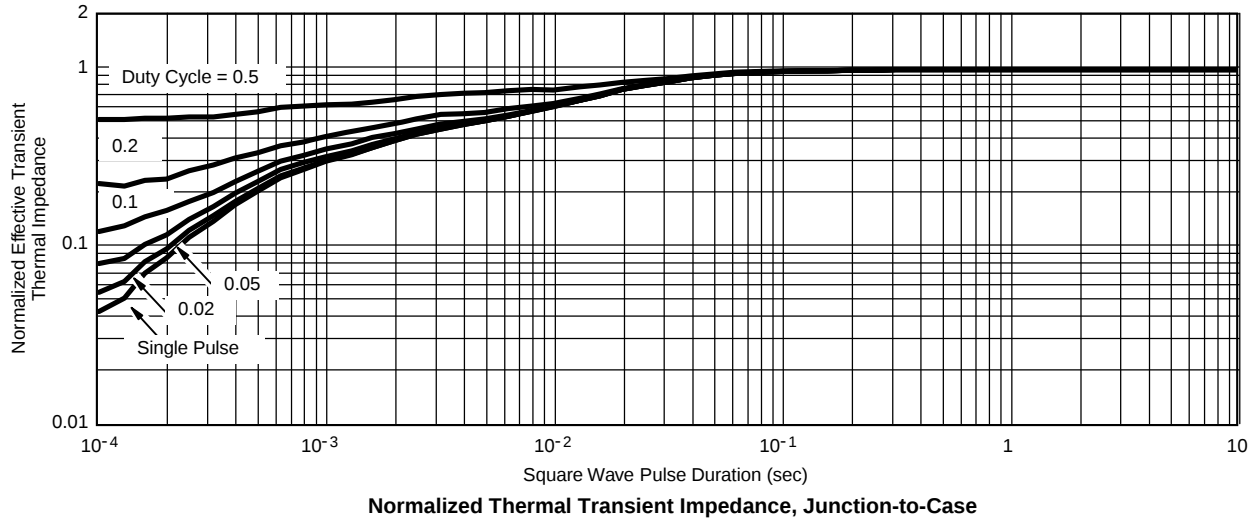
N-Channel 30 V (D-S) MOSFET
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

On-Resistance vs. Junction Temperature

Forward Diode Voltage vs. Temperature

 $R_{DS(on)}$ vs. V_{GS} vs. Temperature

Threshold Voltage


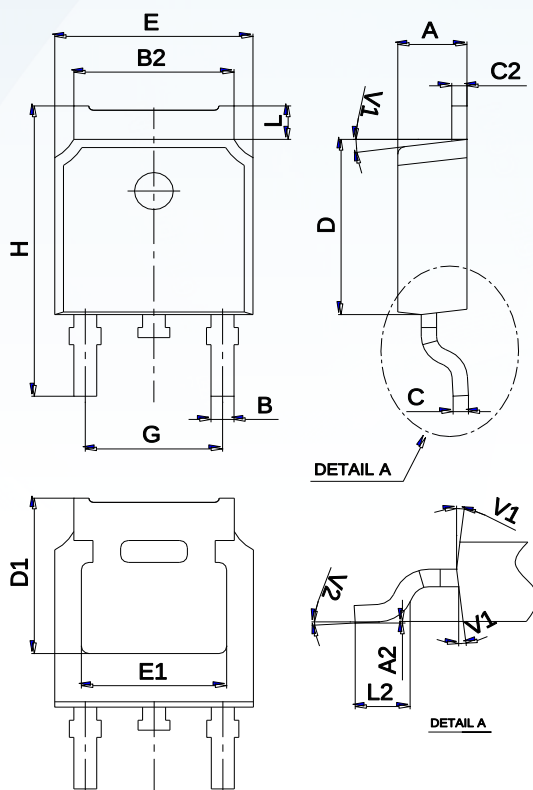
* $V_{GS} >$ minimum V_{GS} at which $r_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient

N-Channel 30 V (D-S) MOSFET
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)


*The power dissipation P_D is based on $T_{J(max)} = 175\text{ °C}$, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.



N-Channel 30 V (D-S) MOSFET
Package Mechanical Data 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°

Ordering information

Order code	Package	Baseqty	Delivery mode
FDD6796A	TO-252	2500	Tape and reel

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