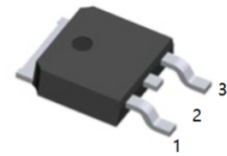


General Description

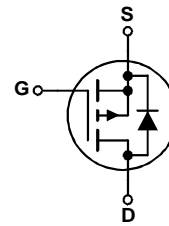
This P-Channel MOSFET has been optimized for power management applications requiring a wide range of gate drive voltage ratings (4.5V – 25V).



1.G 2.D 3.S
TO-252(DPAK) top view

Features

- $V_{DS} (V) = -30V$
- $R_{DS(ON)} < 26\ m\Omega$ ($V_{GS} = -4.5V$)
- $R_{DS(ON)} < 34\ m\Omega$ ($V_{GS} = -2.5V$)
- Fast switching speed
- High performance trench technology for extremely low $R_{DS(ON)}$
- High power and current handling capability



Absolute Maximum Ratings $T_A=25^\circ C$ unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{DSS}	Drain-Source Voltage	-30	V
V_{GSS}	Gate-Source Voltage	± 25	V
I_D	Continuous Drain Current @ $T_C=25^\circ C$ (Note 3) @ $T_A=25^\circ C$ (Note 1a) Pulsed, $PW \leq 100\mu s$ (Note 1b)	-40	A
		-11	
		-100	
P_D	Power Dissipation for Single Operation (Note 1) (Note 1a) (Note 1b)	52	W
		3.8	
		1.6	
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	$^\circ C$
Thermal Characteristics			
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case (Note 1)	2.9	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 1a)	40	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 1b)	96	$^\circ C/W$

Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Drain-Source Avalanche Ratings (Note 4)						
E_{AS}	Single Pulse Drain-Source Avalanche Energy	$I_D = -11\text{ A}$		42		mJ
I_{AS}	Maximum Drain-Source Avalanche Current			-11		A
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-30			V
$\Delta BV_{DSS} / \Delta T_J$	Breakdown Voltage Temperature Coefficient	$I_D = -250\ \mu\text{A}$, Referenced to 25°C		-24		mV/ $^\circ\text{C}$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -24\text{ V}, V_{GS} = 0\text{ V}$			-1	μA
I_{GSS}	Gate-Body Leakage	$V_{GS} = \pm 25\text{ V}, V_{DS} = 0\text{ V}$			± 100	nA
On Characteristics (Note 2)						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-1	-1.8	-3	V
$\Delta V_{GS(th)} / \Delta T_J$	Gate Threshold Voltage Temperature Coefficient	$I_D = -250\ \mu\text{A}$, Referenced to 25°C		5		mV/ $^\circ\text{C}$
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS} = -4.5\text{ V}, I_D = -11\text{ A}$ $V_{GS} = -2.5\text{ V}, I_D = -9\text{ A}$		22 28	26 34	m Ω
$I_{D(on)}$	On-State Drain Current	$V_{GS} = -10\text{ V}, V_{DS} = -5\text{ V}$	-20			A
g_{FS}	Forward Transconductance	$V_{DS} = -5\text{ V}, I_D = -11\text{ A}$		26		S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS} = -15\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$		1715		pF
C_{oss}	Output Capacitance			440		pF
C_{rss}	Reverse Transfer Capacitance			225		pF
R_G	Gate Resistance	$V_{GS} = 15\text{ mV}, f = 1.0\text{ MHz}$		3.6		Ω
Switching Characteristics (Note 2)						
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = -15\text{ V}, I_D = -1\text{ A},$ $V_{GS} = -10\text{ V}, R_{GEN} = 6\ \Omega$		17	31	ns
t_r	Turn-On Rise Time			11	21	ns
$t_{d(off)}$	Turn-Off Delay Time			43	68	ns
t_f	Turn-Off Fall Time			21	34	ns
Q_g	Total Gate Charge	$V_{DS} = -15\text{ V}, I_D = -11\text{ A},$ $V_{GS} = -5\text{ V}$		17	24	nC
Q_{gs}	Gate-Source Charge			9		nC
Q_{gd}	Gate-Drain Charge			4		nC
Drain-Source Diode Characteristics and Maximum Ratings						
V_{SD}	Drain-Source Diode Forward Voltage	$V_{GS} = 0\text{ V}, I_S = -3.2\text{ A}$ (Note 2)		-0.8	-1.2	V
T_{rr}	Diode Reverse Recovery Time	$I_F = -11\text{ A},$ $diF/dt = 100\text{ A}/\mu\text{s}$		26		ns
Q_{rr}	Diode Reverse Recovery Charge			13		nC

Notes:

- $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design.



a) $R_{\theta JA} = 40^\circ\text{C/W}$ when mounted on a 1 in^2 pad of 2 oz copper



b) $R_{\theta JA} = 96^\circ\text{C/W}$ when mounted on a minimum pad.

Scale 1 : 1 on letter size paper

2. Pulse Test: Pulse Width < 300 μs , Duty Cycle < 2.0%

3. Maximum current is calculated as: $\sqrt{\frac{P_D}{R_{DS(on)}}}$

where P_D is maximum power dissipation at $T_C = 25^\circ\text{C}$ and $R_{DS(on)}$ is at $T_{J(max)}$ and $V_{GS} = 10\text{V}$.

4. Starting $T_J = 25^\circ\text{C}$, $L = 0.69\text{mH}$, $I_{AS} = -11\text{A}$

Typical Characteristics

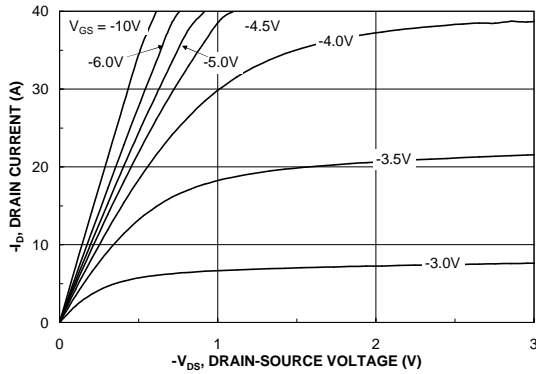


Figure 1. On-Region Characteristics.

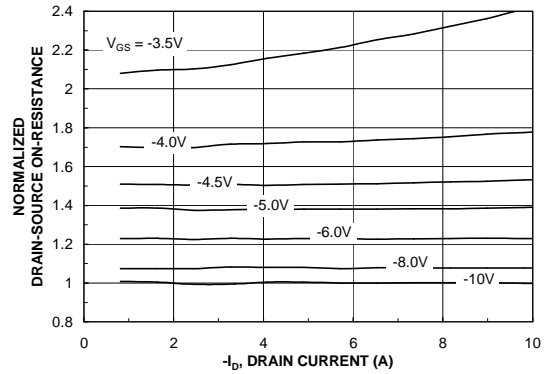


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

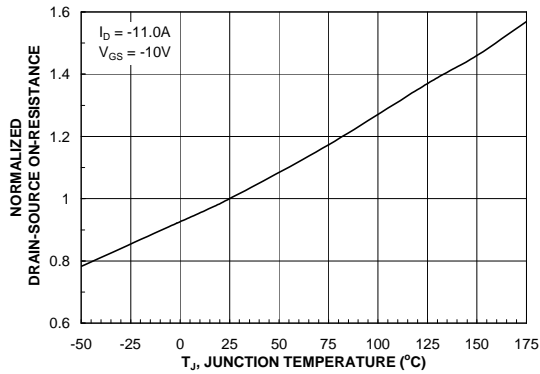


Figure 3. On-Resistance Variation with Temperature.

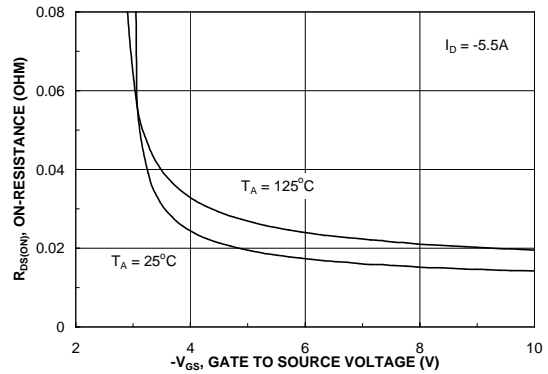


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

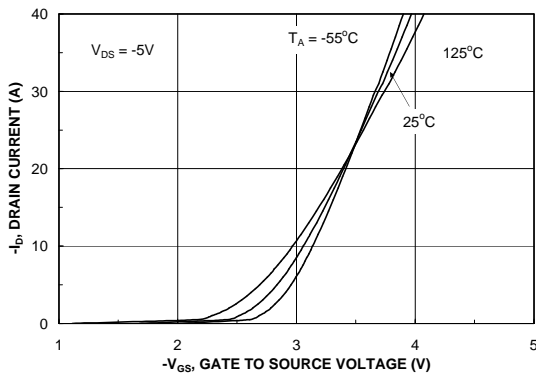


Figure 5. Transfer Characteristics.

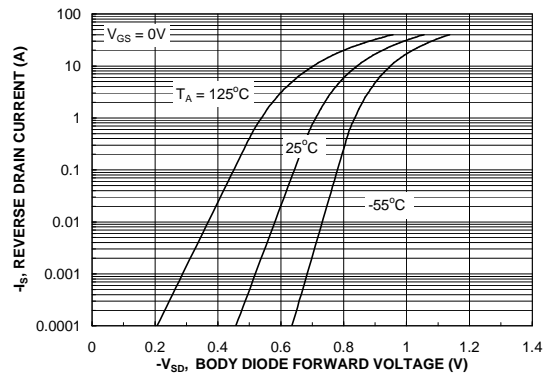


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

Typical Characteristics

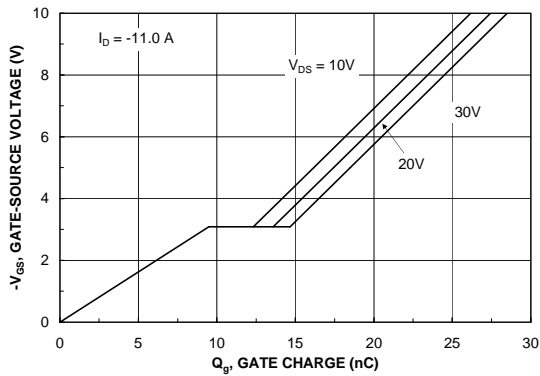


Figure 7. Gate Charge Characteristics.

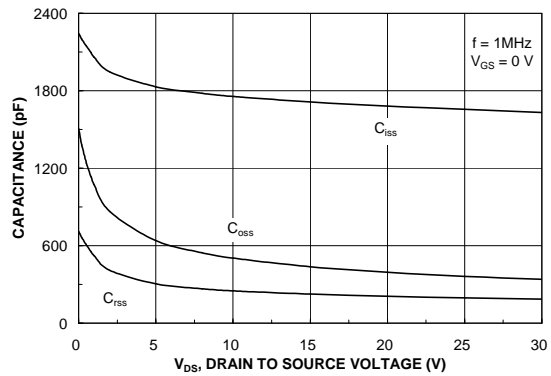


Figure 8. Capacitance Characteristics.

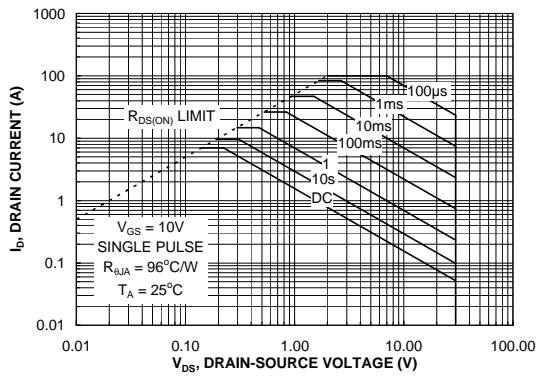


Figure 9. Maximum Safe Operating Area.

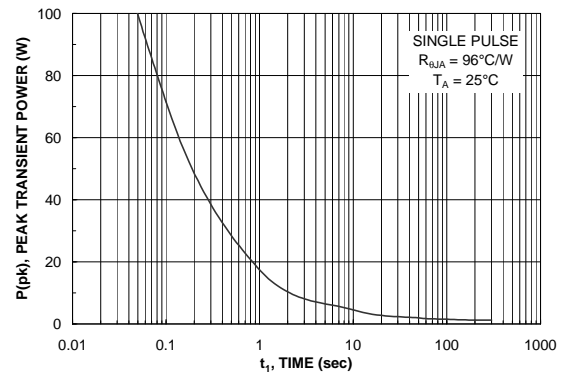


Figure 10. Single Pulse Maximum Power Dissipation.

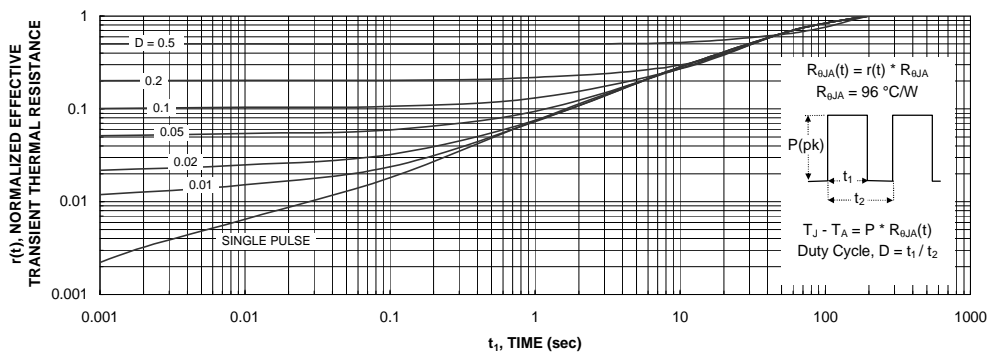
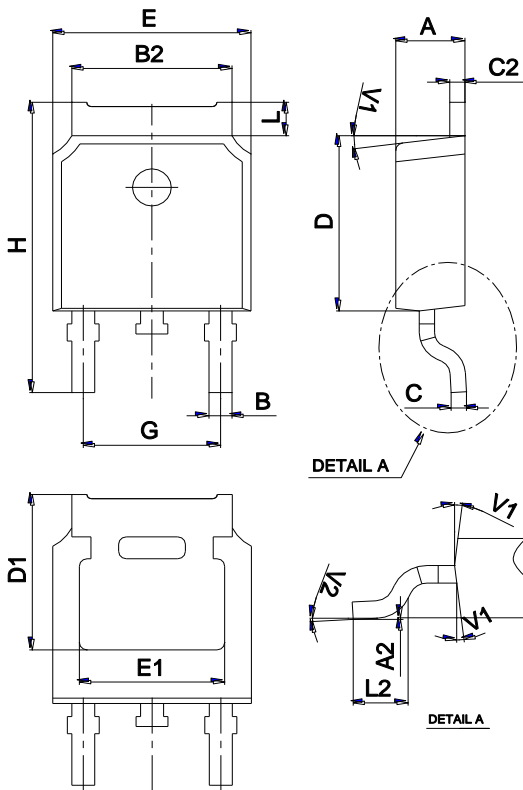


Figure 11. Transient Thermal Response Curve.

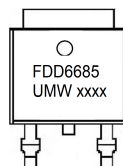
Thermal characterization performed using the conditions described in Note 1b. Transient thermal response will change depending on the circuit board design.

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°

Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
UMW FDD6685	TO-252	2500	Tape and reel

单击下面可查看定价，库存，交付和生命周期等信息

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