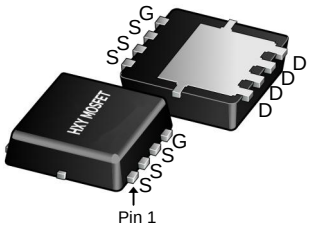
MDV3604URH

P-Channel Enhancement Mode MOSFET

Description

The MDV3604URH uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge .Thisdevice is well suited for high current load applications.



DFN3X3-8L

General Features

V_{DS} =-30V,I_D =-32A

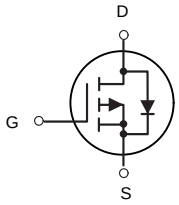
$R_{DS(ON)}$ <12mΩ @ V_{GS}=-10V

$R_{DS(ON)}$ <18mΩ @ V_{GS}=-4.5V

Application

High side switch for full bridge converter

DC/DC converter for LCD display



P-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
MDV3604URH	DFN3X3-8L	HXY MOSFET	5000

Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	-30	V
VGS	Gate-Source Voltage	±25	V
I_D@T_A=25℃	Drain Current[3], V_{GS} @ 10V	-32	A
I_D@T_A=70℃	Drain Current[3], V_{GS} @ 10V	-9.8	A
IDM	Pulsed Drain Current[1]	-65	A
P_D@T_A=25℃	Total Power Dissipation	3.57	W
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
Rthj-c	Maximum Thermal Resistance, Junction-case	6	℃/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	35	℃/W

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30	-	-	V
RDS(ON)	Static Drain-Source On-Resistance[2]	V_{GS}=-10V, I_D=-15A	-	10	12	mΩ
		V_{GS}=-4.5V, I_D=-10A	-	14	18	mΩ
VGS(th)	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1	1.95	-2.5	V
g_{fs}	Forward Transconductance	V_{DS}=-10V, I_D=-6A	-	19	-	S
IDSS	Drain-Source Leakage Current	V_{DS}=-24V, V_{GS}=0V	-	-	-30	uA
IGSS	Gate-Source Leakage	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge	I_D=-15A V_{DS}=-15V V_{GS}=-4.5V	-	12.5	24	nC
Q_{gs}	Gate-Source Charge		-	5.4	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge		-	5	-	nC
td(on)	Turn-on Delay Time	V_{DS}=-15V I_D=-15A R_G=3.3Ω V_{GS}=-10V	-	4.4	-	ns
t_r	Rise Time		-	11.2	-	ns
td(off)	Turn-off Delay Time		-	34	-	ns
t_f	Fall Time		-	18	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V V_{DS}=-15V f=1.0MHz.	-	1345	2000	pF
Coss	Output Capacitance		-	194	-	pF
C_{rss}	Reverse Transfer Capacitance		-	158	-	pF
trr	Reverse Recovery Time	I_S=-15A, V_{GS}=0V, dI/dt=100A/μs	-	12.4	-	ns
Q_{rr}	Reverse Recovery Charge		-	5	-	nC

Notes:
1.Pulse width limited by Max. junction temperature.
2.Pulse test

Typical Electrical

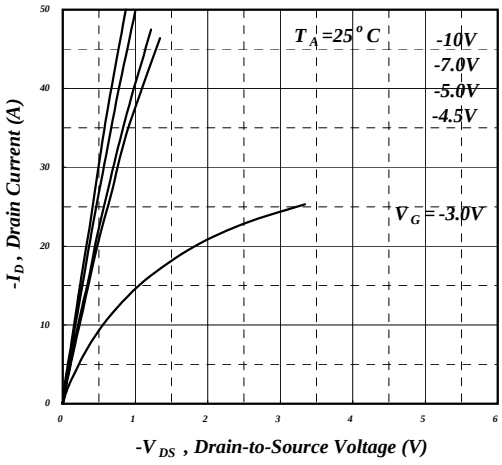


Fig 1. Typical Output Characteristics

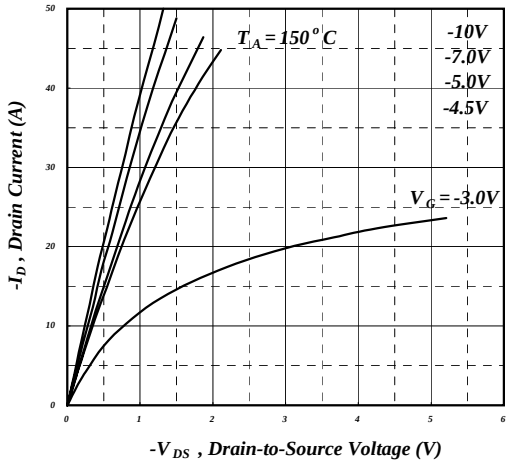


Fig 2. Typical Output Characteristics

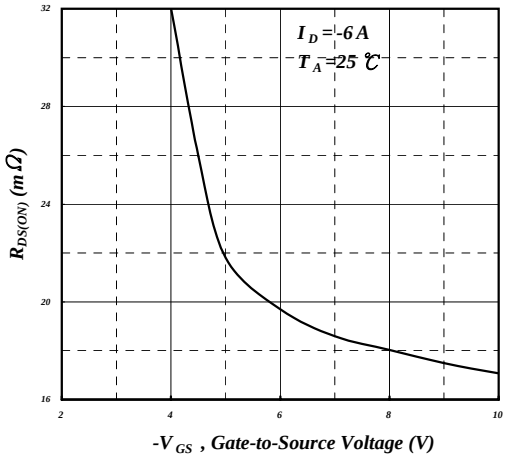


Fig 3. On-Resistance v.s. Gate Voltage

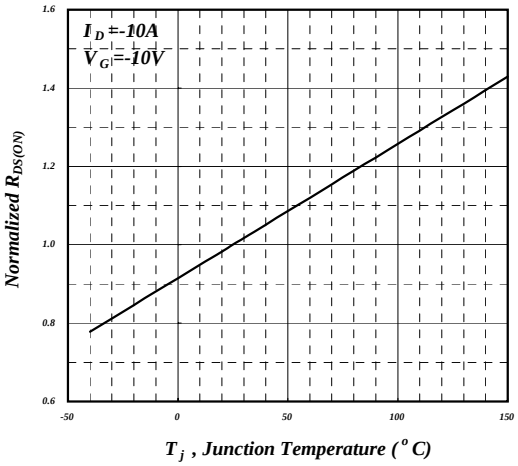


Fig 4. Normalized On-Resistance v.s. Junction Temperature

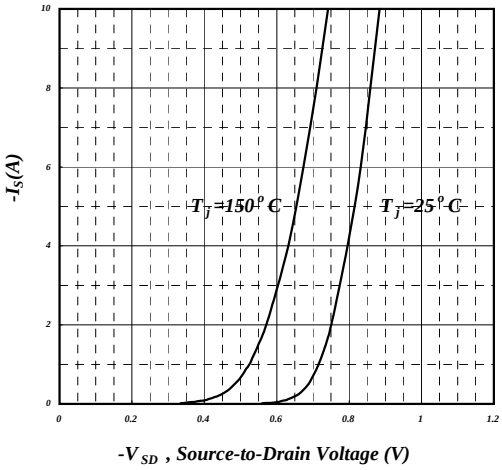


Fig 5. Forward Characteristic of Reverse Diode

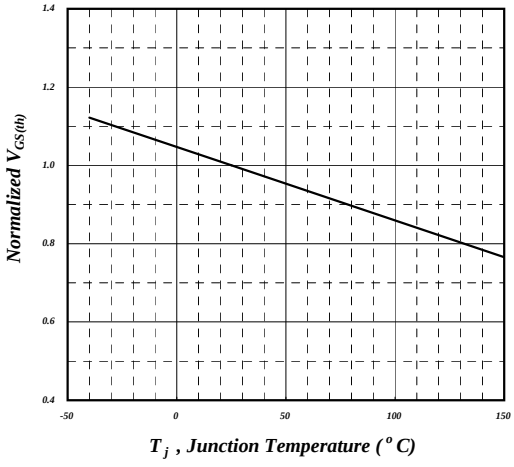


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

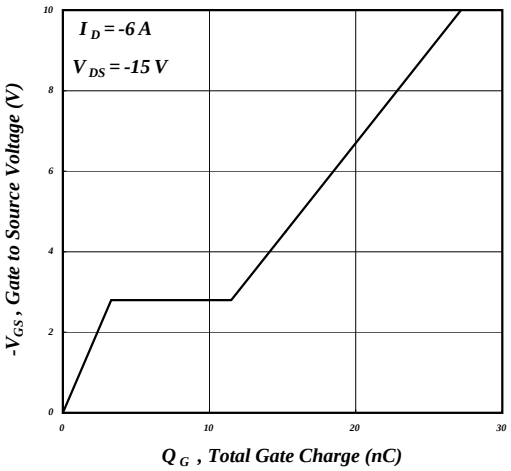


Fig 7. Gate Charge Characteristics

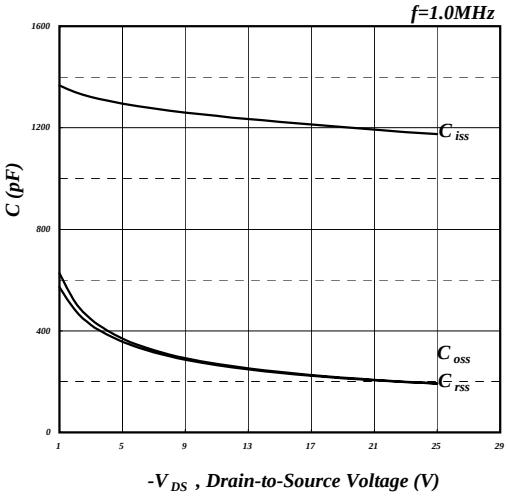


Fig 8. Typical Capacitance Characteristics

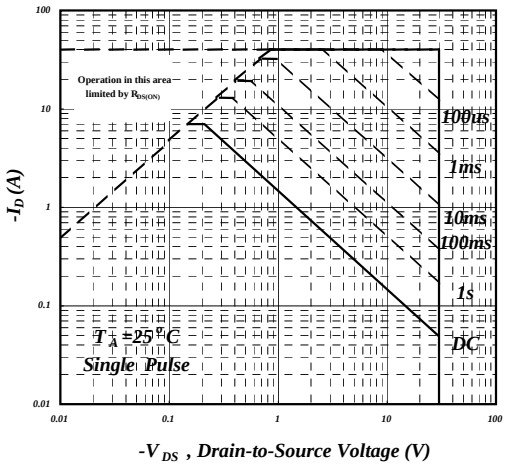


Fig 9. Maximum Safe Operating Area

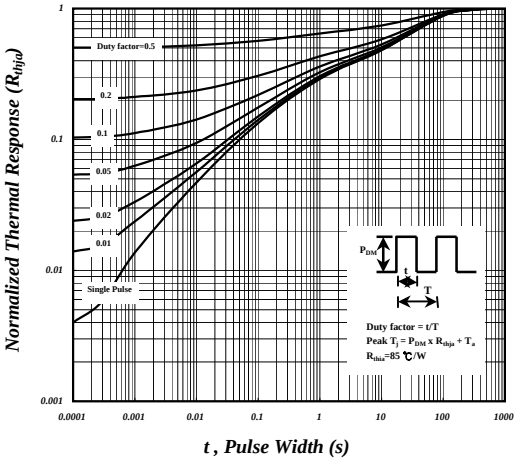


Fig 10. Effective Transient Thermal Impedance

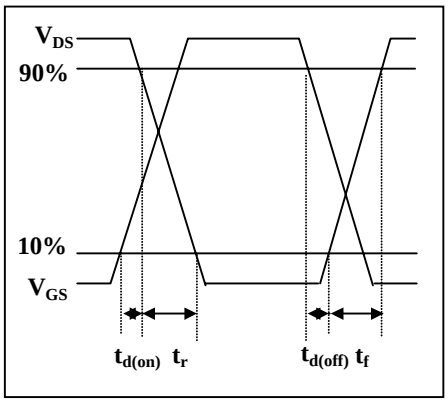


Fig 11. Switching Time Waveform

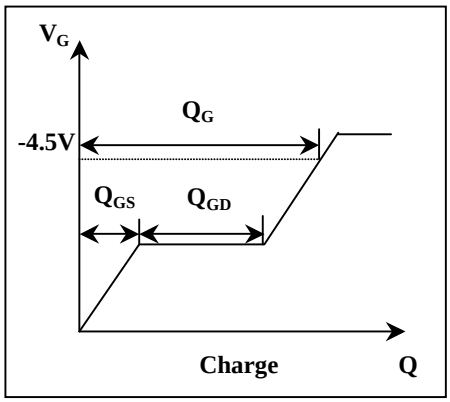
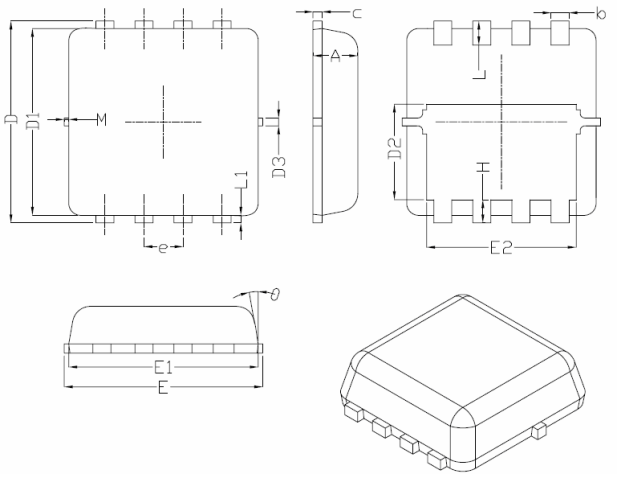


Fig 12. Gate Charge Waveform

DFN3X3-8L Package Information



Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.48	1.58	1.68
D3	-	0.13	-
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	-	0.13	-
M	*	*	0.15
θ		10°	12°

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