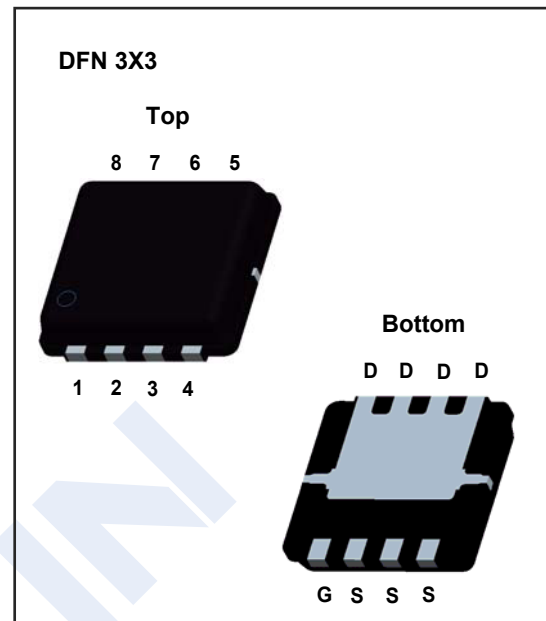
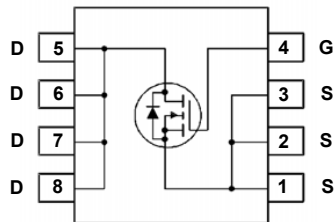


N-Channel MOSFET

FDMC3612 (KDMC3612)

■ Features

- $V_{DS}(V) = 100V$
- $I_D = 12A$
- $R_{DS(ON)} < 110m\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 122m\Omega$ ($V_{GS} = 6V$)
- Low Profile - 1 mm max in Power 33



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current -Continuous	$T_c=25^\circ\text{C}$ (Package limited)	I_D	16	A
	$T_c=25^\circ\text{C}$ (Silicon limited)		12	
	$T_a=25^\circ\text{C}$ (Note.1)		3.3	
Continuous Drain Current -Pulsed			15	
Single Pulse Avalanche Energy (Note.2)		E_{AS}	32	mJ
Power Dissipation	$T_c=25^\circ\text{C}$	P_D	35	W
	$T_a=25^\circ\text{C}$ (Note.1)		2.3	
Thermal Resistance.Junction- to-Ambient (Note.1)		R_{thJA}	53	$^\circ\text{C/W}$
Thermal Resistance.Junction- to-Case		R_{thJC}	3.5	
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-55 to 150	

Note.1: 53 $^\circ\text{C/W}$ when mounted on a 1 in² pad of 2 oz copper

Note.2: Starting $T_J = 25^\circ\text{C}$; N-ch: $L = 1\text{ mH}$, $I_{AS} = 8\text{ A}$, $V_{DD} = 90\text{ V}$, $V_{GS} = 10\text{ V}$.

N-Channel MOSFET

FDMC3612 (KDMC3612)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250 μA	2	2.5	4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =3.3A		92	110	mΩ
		V _{GS} =6V, I _D =3A		98	122	
		V _{GS} =10V, I _D =3.3A T _J =125°C		177	212	
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =3.3A		13		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =50V, f=1MHz		662	880	pF
Output Capacitance	C _{oss}			40	55	
Reverse Transfer Capacitance	C _{rss}			23	35	
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		1.3		Ω
Total Gate Charge	Q _g	V _{GS} =0V to 10V, V _{DS} =50V, I _D =3.3A		14.4	21	nC
Gate Source Charge	Q _{gs}	V _{GS} =0V to 5V, V _{DS} =50V, I _D =3.3A		7.9	12	
Gate Drain Charge	Q _{gd}			2.3		
Turn-On DelayTime	t _{d(on)}	V _{GS} =10V, V _{DS} =50V, I _D =3.3A, R _G =6 Ω		7.4	15	ns
Turn-On Rise Time	t _r			2.8	10	
Turn-Off DelayTime	t _{d(off)}			19	34	
Turn-Off Fall Time	t _f			2	10	
Body Diode Reverse Recovery Time	t _{rr}	I _F = 3.3A, dI/dt= 100A/μs		34	55	nC
Body Diode Reverse Recovery Charge	Q _{rr}			37	60	
Maximum Body-Diode Continuous Current	I _S				3.3	A
Diode Forward Voltage (Note.1)	V _{SD}	I _S =3.3A, V _{GS} =0V		0.88	1.2	V
		I _S =2A, V _{GS} =0V		0.77	1.2	

Note.1:Pulse Test: Pulse Width < 300 μs, Duty cycle < 2.0%.

N-Channel MOSFET

FDMC3612 (KDMC3612)

■ Typical Characteristics

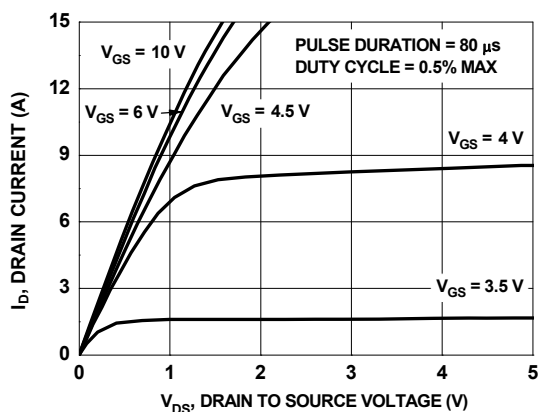


Figure 1. On Region Characteristics

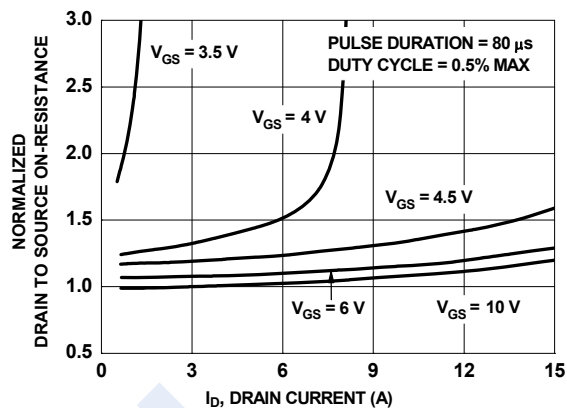


Figure 2. Normalized On-Resistance vs Drain Current and Gate Voltage

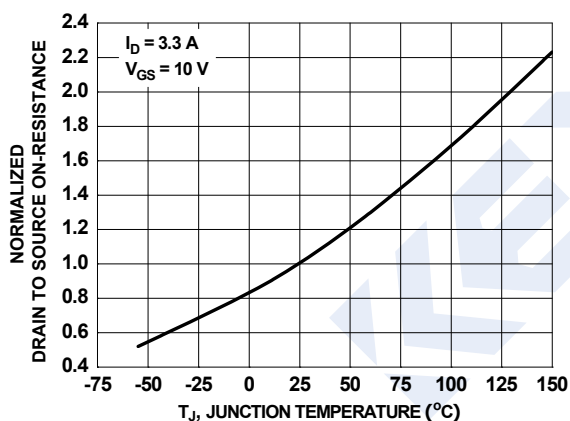


Figure 3. Normalized On Resistance vs Junction Temperature

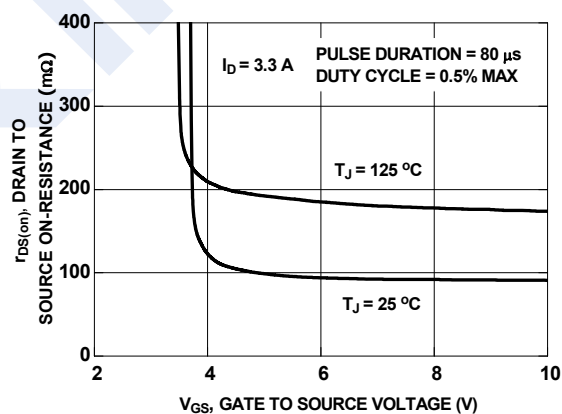


Figure 4. On-Resistance vs Gate to Source Voltage

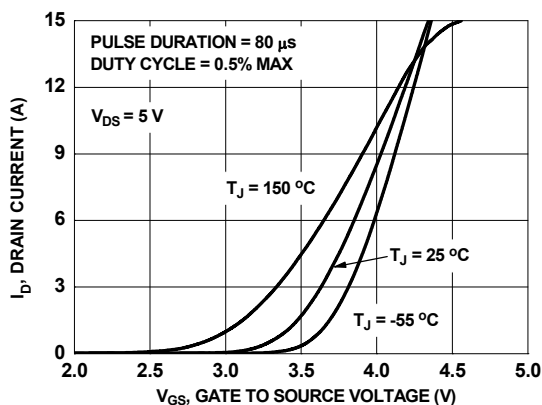


Figure 5. Transfer Characteristics

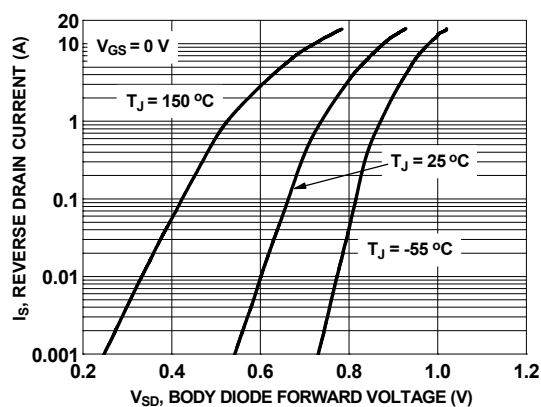


Figure 6. Source to Drain Diode Forward Voltage vs Source Current

N-Channel MOSFET

FDMC3612 (KDMC3612)

Typical Characteristics

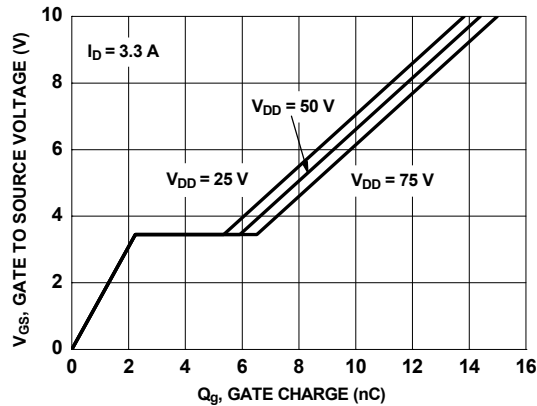


Figure 7. Gate Charge Characteristics

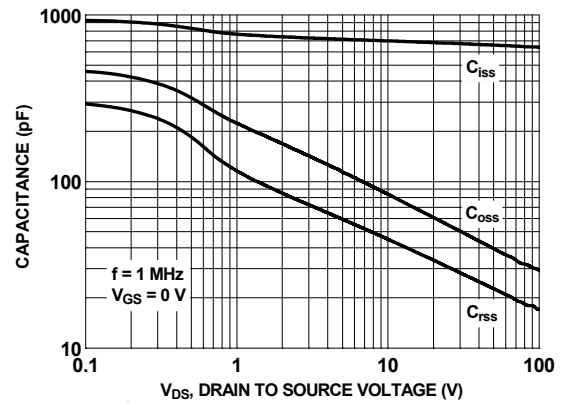


Figure 8. Capacitance vs Drain to Source Voltage

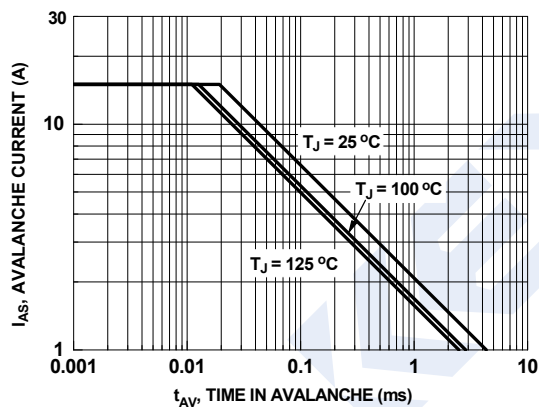


Figure 9. Unclamped Inductive Switching Capability

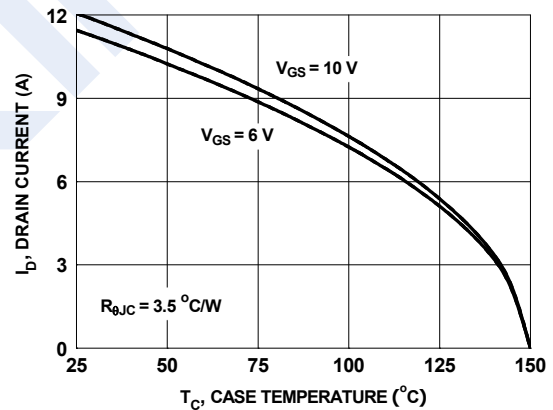


Figure 10. Maximum Continuous Drain Current vs Case Temperature

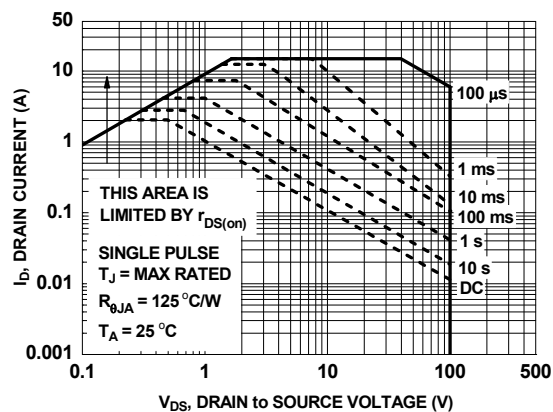


Figure 11. Forward Bias Safe Operating Area

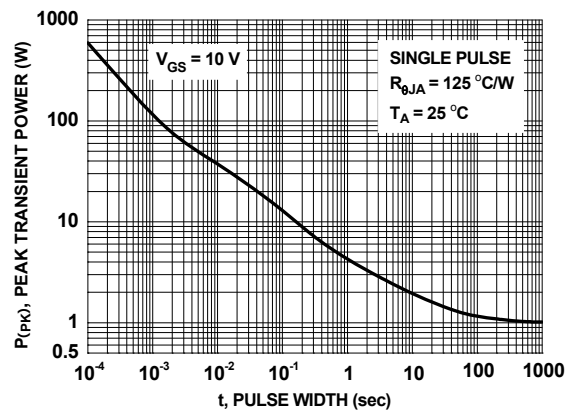


Figure 12. Single Pulse Maximum Power Dissipation

N-Channel MOSFET

FDMC3612 (KDMC3612)

■ Typical Characteristics

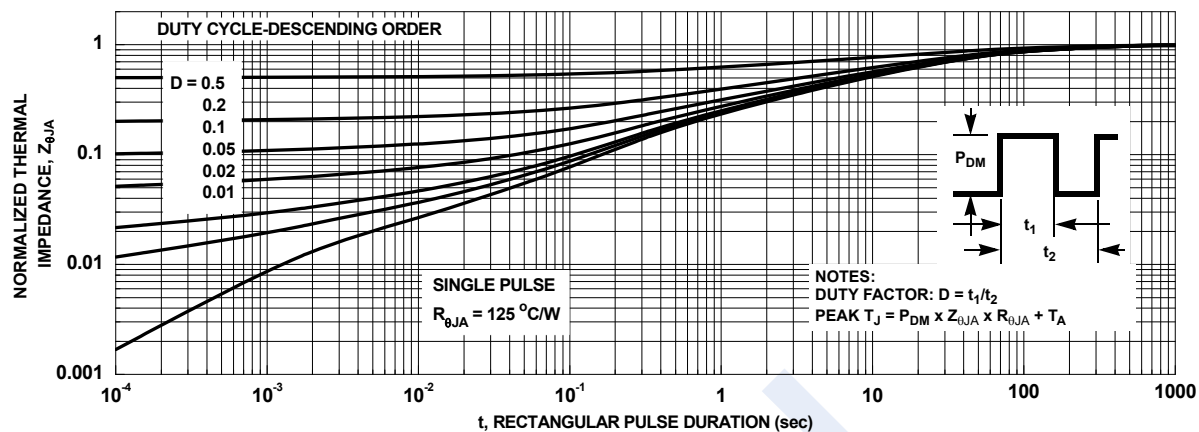
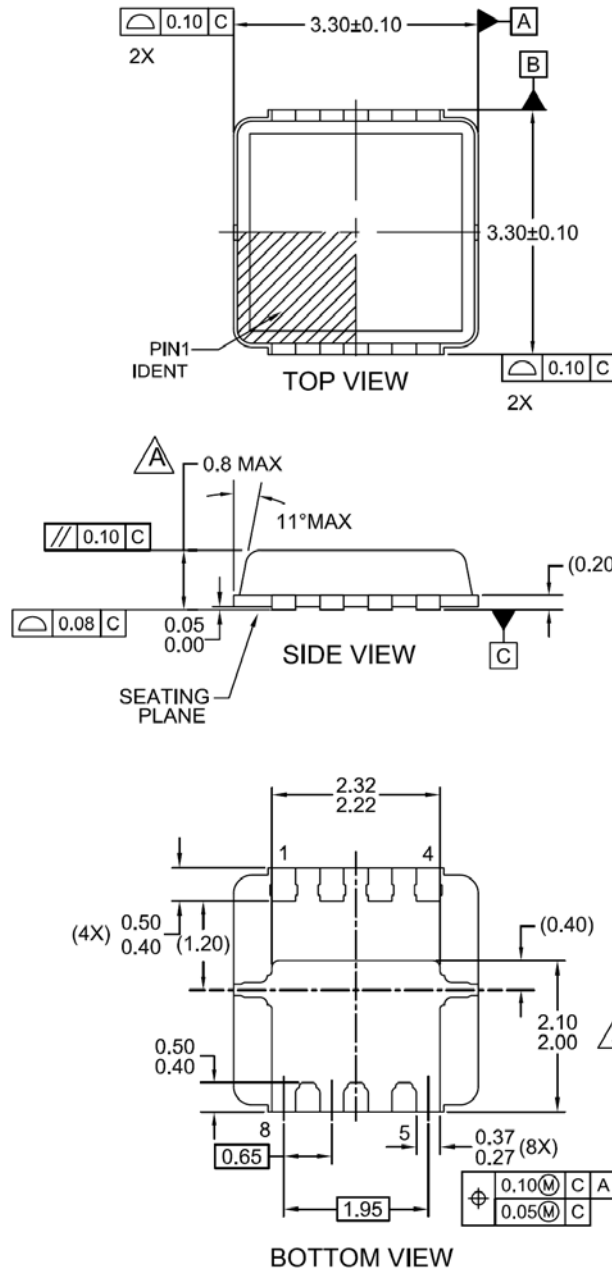


Figure 13. Junction-to-Ambient Transient Thermal Response Curve

Dimensional Outline and Pad Layout



NOTES:

- A. EXCEPT AS NOTED, PACKAGE CONFORMS TO JEDEC REGISTRATION MO-240 VARIATION BA..
- B. DIMENSIONS ARE IN MILLIMETERS.
- C. DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.
- D. SEATING PLANE IS DEFINED BY TERMINAL TIPS ONLY
- E. BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH PROTRUSIONS NOR GATE BURRS.
- F. FLANGE DIMENSIONS INCLUDE INTERTERMINAL FLASH OR PROTRUSION. INTERTERMINAL FLASH OR PROTRUSION SHALL NOT EXCEED 0.25MM PER SIDE.
- G. LAND PATTERN RECOMMENDATION IS BASED ON FSC DESIGN ONLY.
- H. DRAWING FILENAME: MKT-MLP08Trev1.
- I. GENERAL RADII FOR ALL CORNERS SHALL BE 0.20MM MAX.