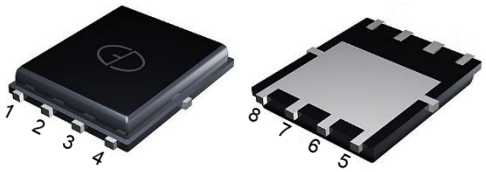
P-Channel -40V (D-S) Power MOSFET

Features

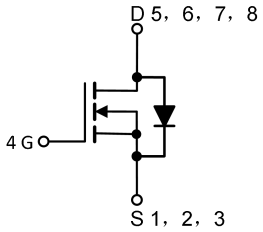
- 100% Avalanche Tested
- Extremely Low Losses with Low FOM Rdson*Qg
- Halogen Free, Pb-Free
- RoHS Compliant



PDFN5060

Applications

- DC-DC
- Motors, lamps
- Power switching



Absolute Maximum Ratings (T_J=25°C unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain Source Voltage		V_{DS}	-40	V
Gate Source Voltage		V_{GS}	±20	V
Drain Current, Continuous V_{GS}=-10V *(Note 1)*	T_C=25°C	I_D	-25	A
Drain Current, Pulsed *(Note 2)*		I_{DM}	-100	A
Single Avalanche Energy@ L=0.3mH		E_{AS}	141	mJ
Power Dissipation *(Note 3)*	T_C=25°C	P_D	35	W
Operating Junction/ Storage Temperature Range		T_J/ T_{STG}	-55 to +150	°C

Note 1: Calculated continuous current based on maximum allowable junction temperature.
Note 2: Repetitive rating; pulse width limited by max. junction temperature.

Thermal Characteristics

Parameter	Symbol	Max	Unit
Thermal Resistance Junction to Case	R_{thJC}	3.6	°C/W

Note 3: The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.

Electrical Characteristics (T_J =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250μA	-40	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, V_{GS}=0V	--	--	-1	uA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_{DS}=-250uA	-1	--	-2.5	V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	--	--	±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	V_{GS}=-10V, I_D=-10A	--	10	15	mΩ
		V_{GS}=-4.5V, I_D=-8A	--	13	22	
Total Gate Charge	Q_g	I_D = -10A, V_{DS}=-32V, V_{GS} = -4.5V	--	18	--	nC
Gate-Source Charge	Q_{gs}		--	9	--	
Gate-Drain Charge	Q_{gd}		--	8	--	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=-10V, V_{DD}=-20V, I_D=-20A, R_G=3Ω	--	19	--	ns
Turn-on Rise Time	t_r		--	77	--	
Turn-off Delay Time	$t_{d(off)}$		--	48	--	
Turn-off Fall Time	t_f		--	59	--	
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-25V, f=1MHz	--	3468	--	pF
Output Capacitance	C_{oss}		--	210	--	
Reverse Transfer Capacitance	C_{rss}		--	202	--	

Reverse Diode Characteristics (T_J =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Current, Continuous	I_{SD}	T_C=25°C	--	--	-25	A
Pulsed Source Current	I_{SM}	T_C=25°C	--	--	-100	A
Diode Forward Voltage	V_{SD}	I_F=-1A, V_{GS}=0V	--	--	-1.3	V

Typical Characteristics Curves (T_J = 25℃ unless otherwise noted)

Fig.1 - Typical Output Characteristics

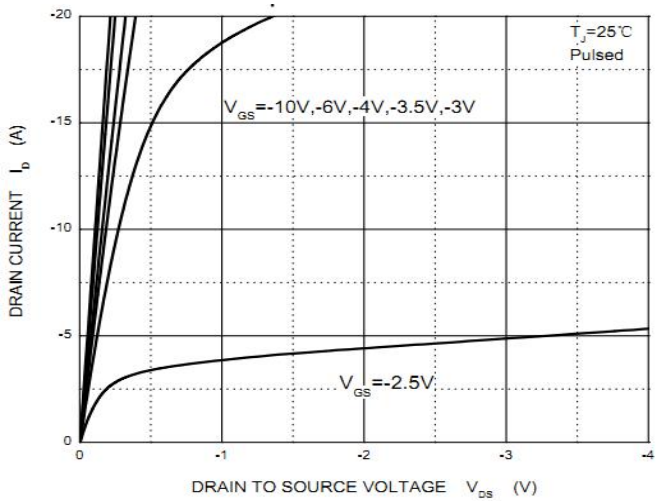


Fig.2 - Normalized V_{GS}(th) vs. Junction Temperature

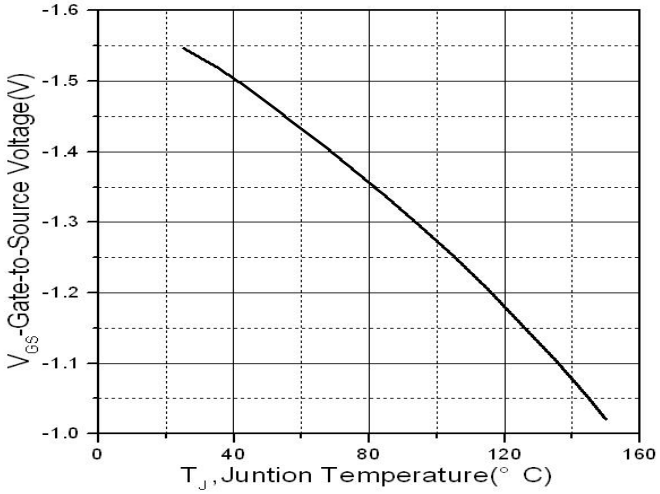


Fig.3 - Normalized On-Resistance vs. Junction Temperature

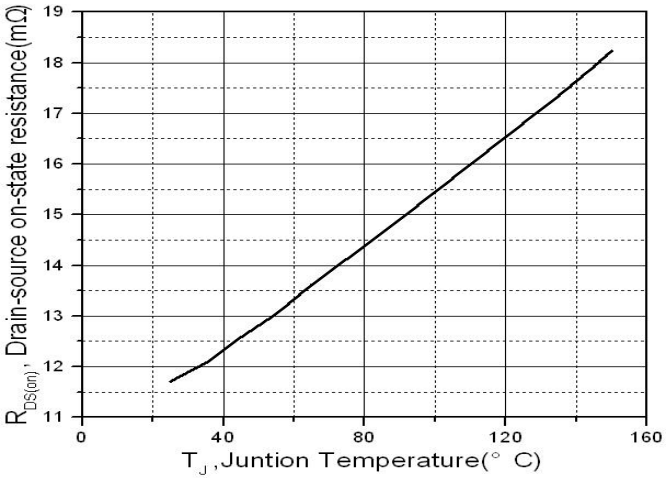


Fig.4 - Drain-to-Source Breakdown Voltage vs. Junction Temperature

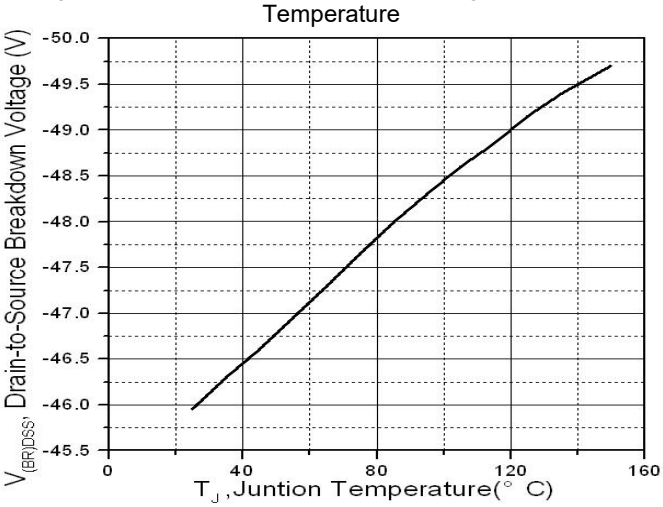


Fig.5 - Capacitance Characteristics

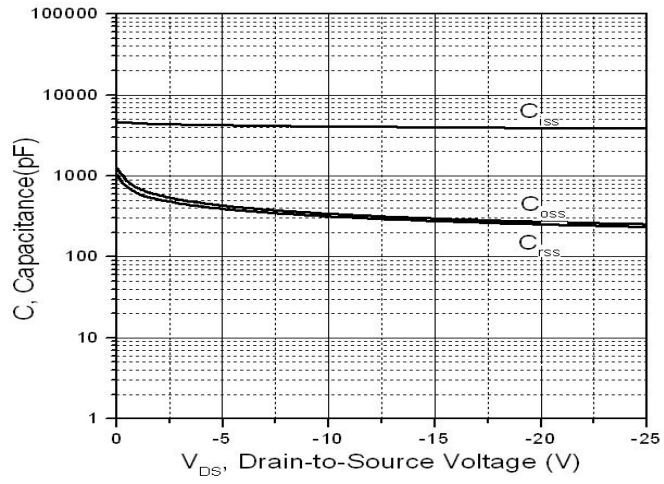
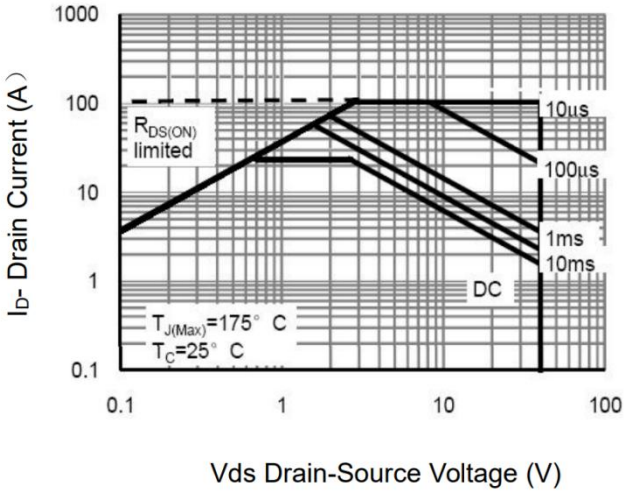
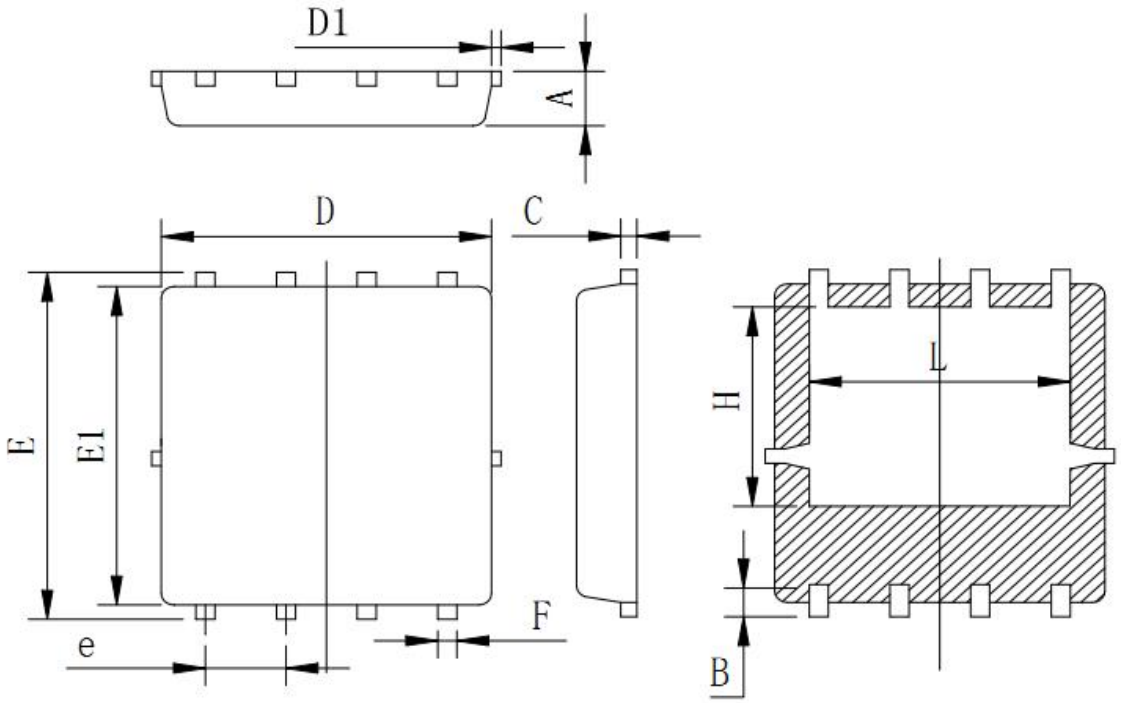


Fig.6 - Safe Operation Area



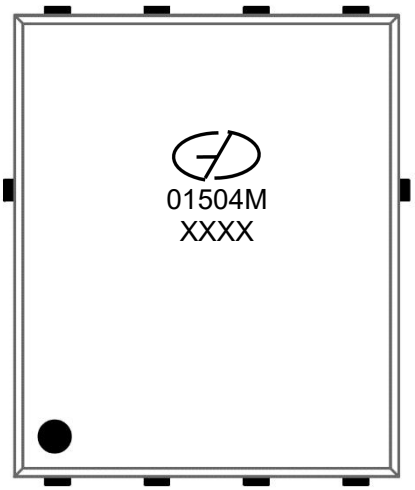
Package Outline Dimensions (Unit: millimeters)

PDFN5060



Symbol	Min	Typ	Max
A	0.90	0.95	1.00
B	0.48	0.58	0.68
C	0.20	0.254	0.30
D	5.00	5.20	5.40
D1			0.15
E	5.90	6.05	6.20
E1	5.40	5.55	5.70
e	1.22	1.27	1.32
F	0.25	0.30	0.35
H	3.27	3.47	3.67
L	3.80	4.00	4.20

Marking Outline



Part Name: GMP01504M

1. Logo Mark:
2. P/N Mark: 01504M
3. Date Code: XXXX
4. Pin 1#: ●

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