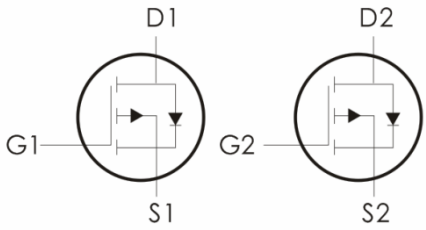
Description：

This Dual P-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features：

1) V_{DS}=-20V,I_D=-12A,$R_{DS(ON)}$<16mΩ @V_{GS}=-4.5V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.

Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
ZB016DPG	B016DP	DFN3*3-8D	5000 pcs/Reel

Absolute Maximum Ratings： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Continuous Drain Current	-12	A
	Continuous Drain Current-T_C=100℃[1]	-50	
P_D	Power Dissipation	15	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient[2]	4.5	℃/W

Electrical Characteristics: (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	-20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-12V	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±12V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	-0.4	-0.65	-1	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=-4.5V,I_D=-6A	---	12	16	mΩ
		V_{GS}=-2.5V,I_D=-5A	---	17	24	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-6V, V_{GS}=0V, f=1MHz	---	1730	---	pF
C_{oss}	Output Capacitance		---	320	--	
C_{rss}	Reverse Transfer Capacitance		---	210	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=-6V, I_D=-1A, R_L=6Ω ,V_{GS}=-4.5V， R_g=6Ω	---	20	---	ns
t_r	Rise Time		---	35	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	90	---	ns
t_f	Fall Time[2]		---	70	---	ns
Q_g	Total Gate Charge	V_{GS}=-4.5V, V_{DS}=-6V, I_D=-6A	---	19.5	---	nc
Q_{gs}	Gate-Source Charge		---	4.1	---	nc
Q_{gd}	Gate-Drain “Miller” Charge		---	5.2	---	nc
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage[3]	V_{GS}=0V, I_{SD}=-1A	---	---	-1.2	V
I_S	Continuous Drain Curren[2]	V_D=V_G=0V	---	---	-12	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Characteristics: (T_C=25℃ unless otherwise noted)

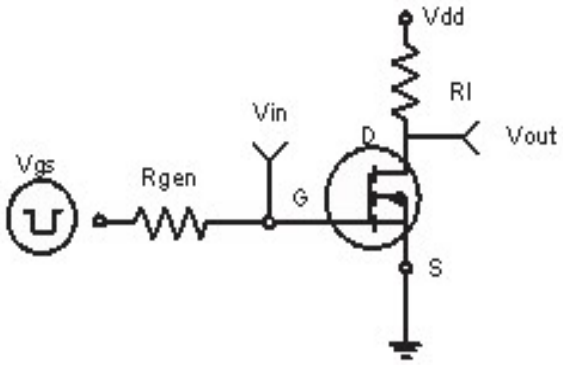


Figure 1:Switching Test Circuit

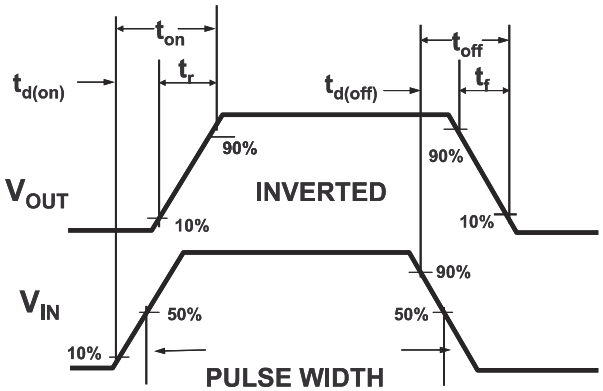
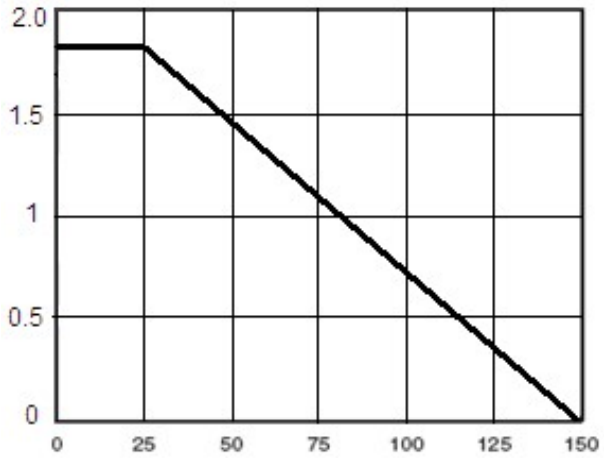
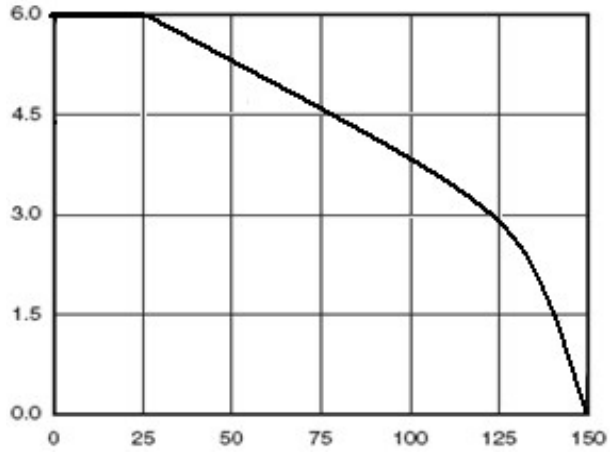


Figure 2:Switching Waveforms



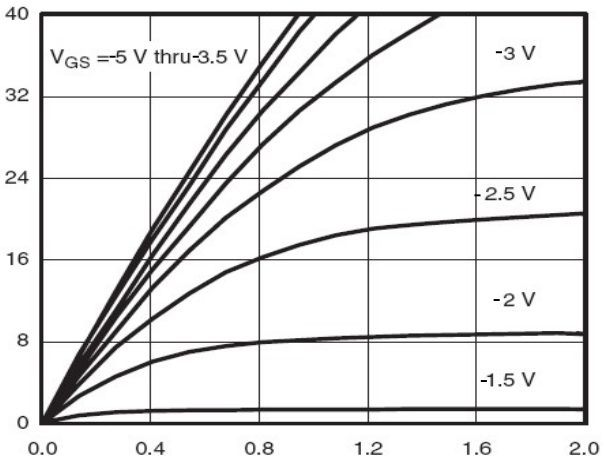
T_J-Junction Temperature(℃)

Fi gure3 P owerDi ssi pati on



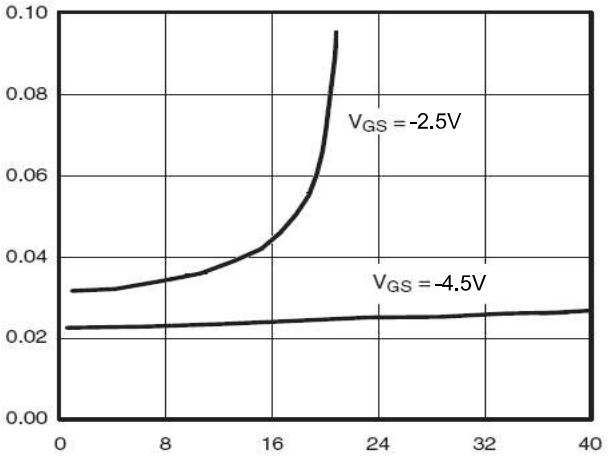
T_J-Junction Temperature(℃)

Figure 4 Drain Current



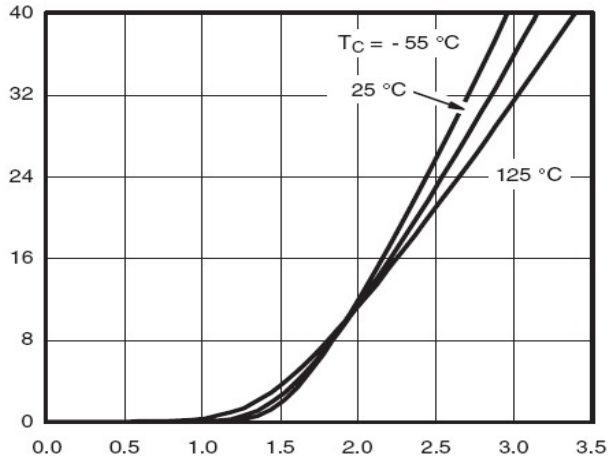
Vds Drain-Source Voltage (V)

Figure 5 Output Characteristics



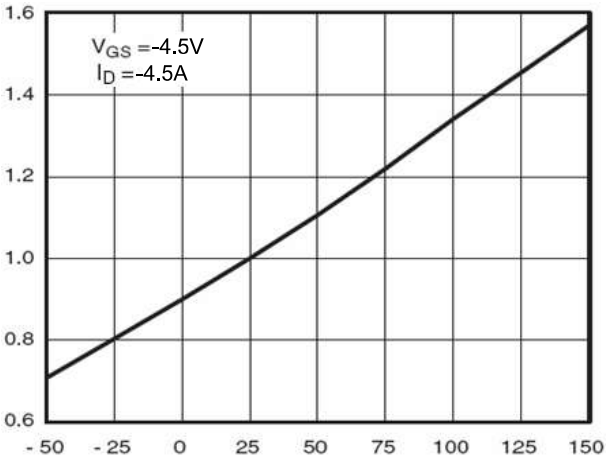
I_D- Drain Current (A)

Figure 6 Drain-Source On-Resistance



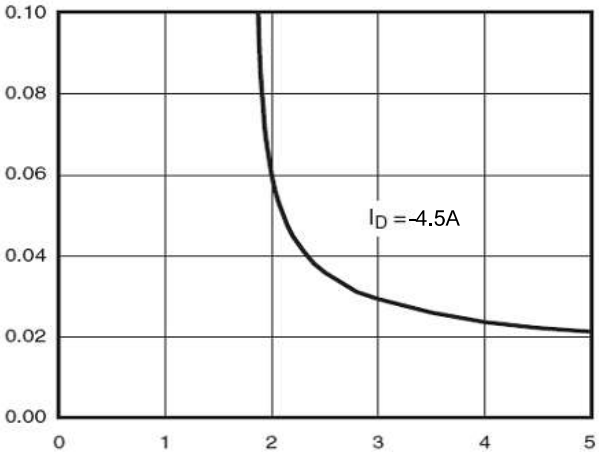
Vgs Gate-Source Voltage (V)

Figure 7 Transfer Characteristics



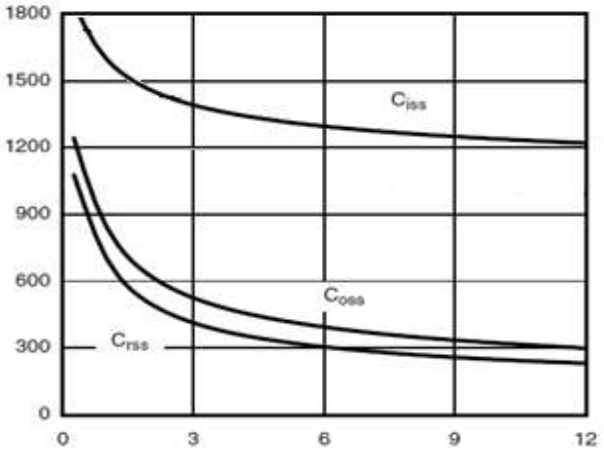
T_J-Junction Temperature(℃)

Figure 8 Drain-Source On-Resistance



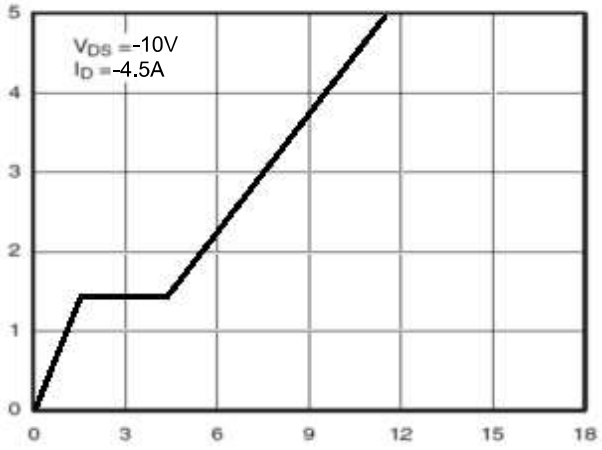
Vgs Gate-Source Voltage (V)

Figure 9 Rdson vs Vgs



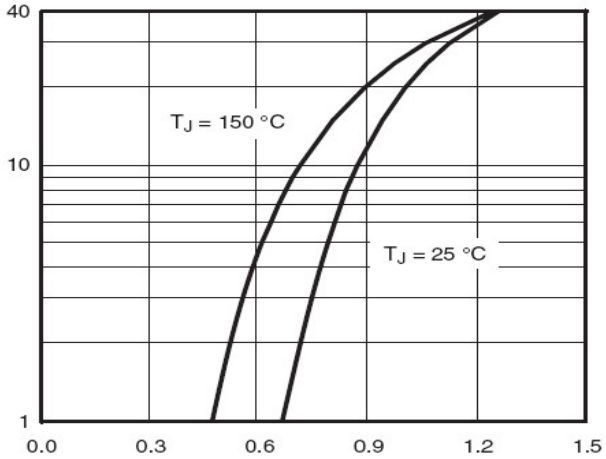
Vds Drain-Source Voltage (V)

Figure 10 Capacitance vs Vds



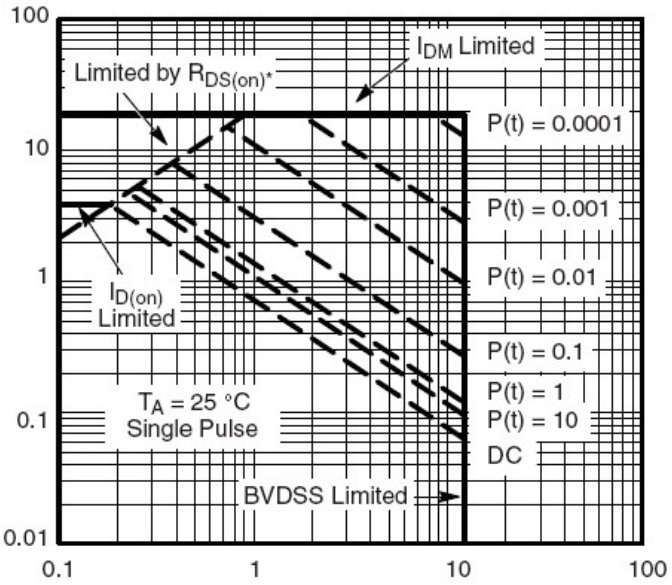
Qg Gate Charge (nC)

Figure 11 Gate Charge



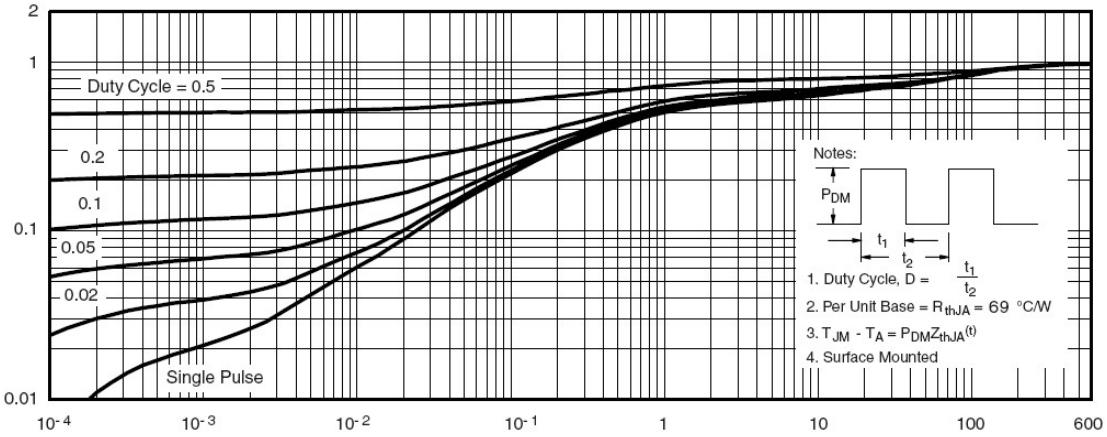
Vsd Source-Drain Voltage (V)

Figure 12 Source- Drain Diode Forward



Vds Drain-Source Voltage (V)

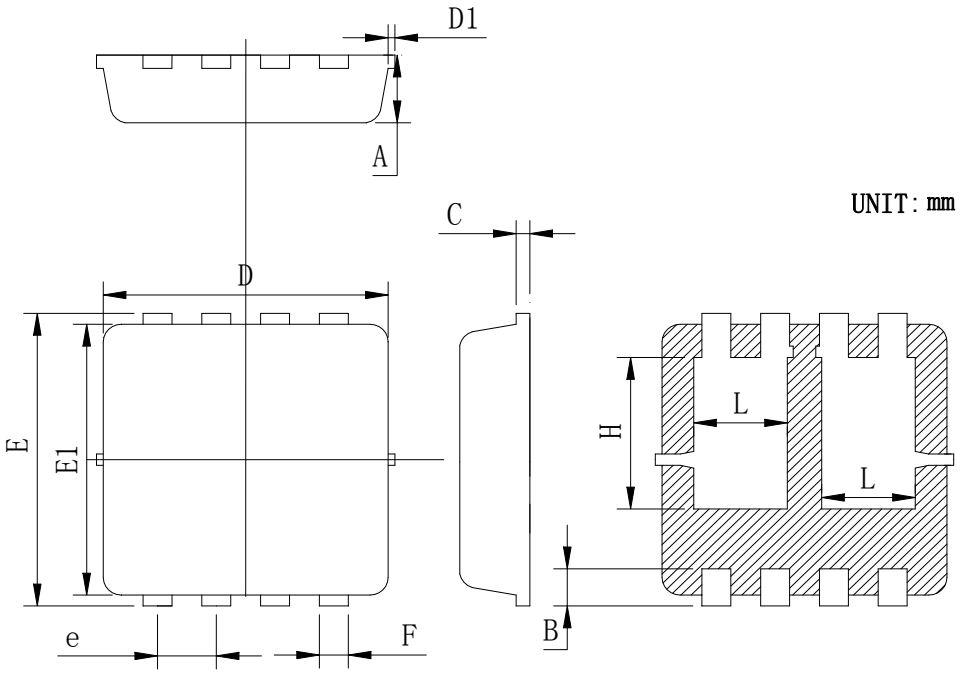
Figure 13 Safe Operation Area



Square Wave Pluse Duration(sec)

Figure 14 Normalized Maximum Transient Thermal Impedance

DFN3X3-8D Package Outline Data



Symbol	Min	Typ	Max
A	0.725	0.775	0.825
B	0.28	0.38	0.48
C	0.13	0.15	0.20
D	3.05	3.15	3.25
D1			0.10
E	3.25	3.35	3.45
E1	3.0	3.1	3.2
e	0.60	0.65	0.70
F	0.27	0.32	0.37
H	1.63	1.73	1.83
L	0.93	1.03	1.13

Marking Information：

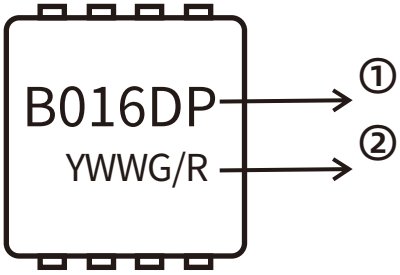
①: Part NO.

②: Date Code (YWWG / R)

Y: Year Code , last digit of the year

WW : Week Code (01-53)

G/R: G(Green) /R(Lead Free)



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2024-06-16	Release of final version

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