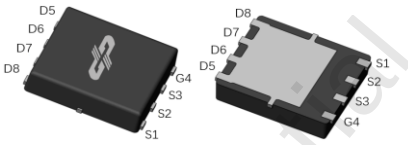
DP008N04FGLI

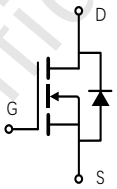
DPMOS N-MOSFET 40V, 0.68mΩ, 355A

Product Summary

Part #	V_{DS}	$R_{DS(on).typ}$ ($@V_{GS}$=10V)	$R_{DS(on).typ}$ ($@V_{GS}$=4.5V)	I_D
DP008N04FGLI	40V	0.68mΩ	0.92mΩ	355A

DFN 5x6





MSL-1

100% Avalanche Tested

100% Rg Tested

Features

- Uses advanced MOSFET-DPMOS2 technology
- Extremely low on-resistance $R_{DS(on)}$
- Excellent Q_gx$R_{DS(on)}$ product(FOM)
- Qualified according to JEDEC criteria(industrial grade)

Applications

- Motor control and drive
- Battery management
- UPS (Uninterrupible Power Supplies)

Package Marking and Ordering Information

Part #	Marking	Package	Packing
DP008N04FGLI	008N04FGL	DFN 5x6	Tape&Reel

Halogen-Free

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	40	V
Continuous drain current T_C = 25°C (Chip Limitation) T_C = 25°C (Package Limit) T_C = 100°C	I_D	 355 575 251	A
Pulsed drain current (T_C = 25°C, t_p limited by T_{jmax})	$I_{D\ pulse}$	1420	A
Avalanche energy, single pulse (L=0.5mH, Rg=25Ω)[1]	E_{AS}	812	mJ
Gate-Source voltage	V_{GS}	±20	V
Power dissipation (T_C = 25°C)	P_{tot}	200	W
Operating junction and storage temperature	T_j , T_{stg}	-55...+175	°C

[1].EAS is tested at starting Tj = 25°C, VGS = 10V.

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Thermal Resistance

Parameter	Symbol	Max	Unit
Thermal resistance, junction – case.	R_{thJC}	0.8	°C/W
Thermal resistance, junction – ambient(min. footprint)	R_{thJA}	40	

Electrical Characteristic (at Tj = 25 °C, unless otherwise specified)

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Static Characteristic						
Drain-source breakdown voltage	BV_{DSS}	40	-	-	V	V_{GS}=0V, I_D=250uA
Gate threshold voltage	$V_{GS(th)}$	1.3	1.7	2.1	V	V_{DS}=V_{GS},I_D=250uA
Zero gate voltage drain current	I_{DSS}	- -	- 1	1 -	μA	V_{DS}=40V,V_{GS}=0V T_j=25°C T_j=150°C
Gate-source leakage current	I_{GSS}	-	-	±100	nA	V_{GS}=±20V,V_{DS}=0V
Drain-source on-state resistance	$R_{DS(on)}$	- -	0.68 0.92	0.8 1.1	mΩ	V_{GS}=10V, I_D=40A V_{GS}=4.5V, I_D=20A
Gate resistance	R_g	-	1.1	3	Ω	V_{GS}=0V, V_{DS}=0V, f=1MHz
Transconductance[2]	g_{fs}	-	342	-	S	V_{DS}=5V,I_D=50A
Dynamic Characteristic[2]						
Input Capacitance	C_{iss}	-	7152	-	pF	V_{GS}=0V, V_{DS}=20V, f=1MHz
Output Capacitance	C_{oss}	-	2341	-		
Reverse Transfer Capacitance	C_{rss}	-	114	-		
Gate Total Charge	Q_g	-	111	-	nC	V_{GS}=10V, V_{DS}=20V, I_D=40A, f=1MHz
Gate-Source charge	Q_{gs}	-	25	-		
Gate-Drain charge	Q_{gd}	-	19	-		
Turn-on delay time	$t_{d(on)}$	-	11	-	ns	V_{GS}=10V, V_{DD}=20V, R_{G_ext}=2.7Ω
Rise time	t_r	-	8	-		
Turn-off delay time	$t_{d(off)}$	-	22	-		
Fall time	t_f	-	8	-		

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Body Diode Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Body Diode Forward Voltage	V_{SD}	-	0.75	1.3	V	V_{GS}=0V,I_{SD}=20A
Diode continuous forward current	I_s	-	-	355	A	TC = 25°C
Diode pluse current	$I_{s\ pluse}$	-	-	1420	A	TC = 25°C
Body Diode Reverse Recovery Time[2]	t_{rr}	-	55	-	ns	I_F=50A, dI/dt=100A/μs
Body Diode Reverse Recovery Charge[2]	Q_{rr}	-	60	-	nC	

[2]. Defined by design. Not subject to production test

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Typical Performance Characteristics

Fig 1: Output Characteristics

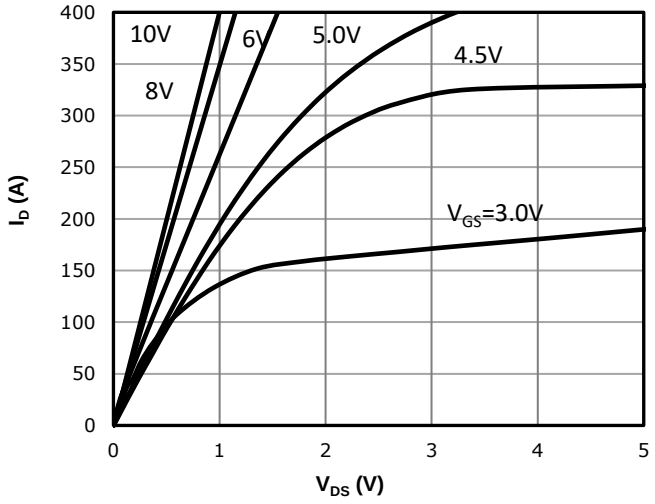


Fig 2: Transfer Characteristics

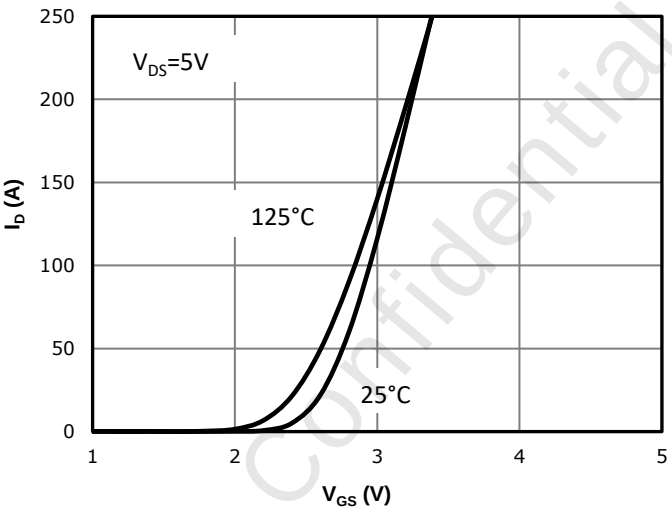


Fig 3: Rds(on) vs Drain Current and Gate Voltage

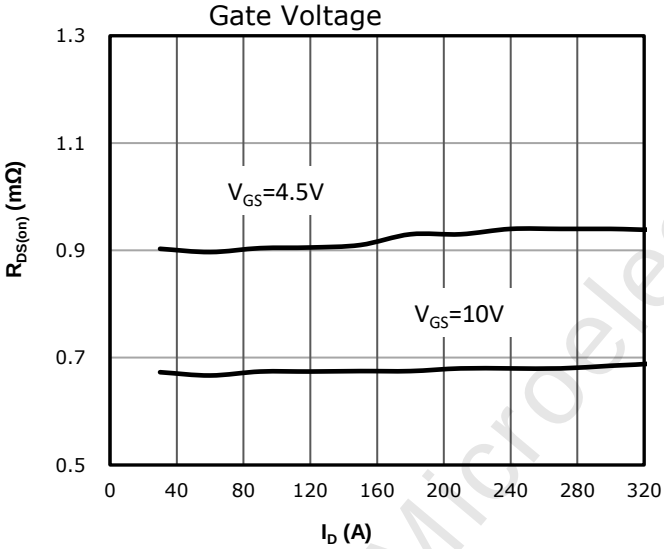


Fig 4: Rds(on) vs Gate Voltage

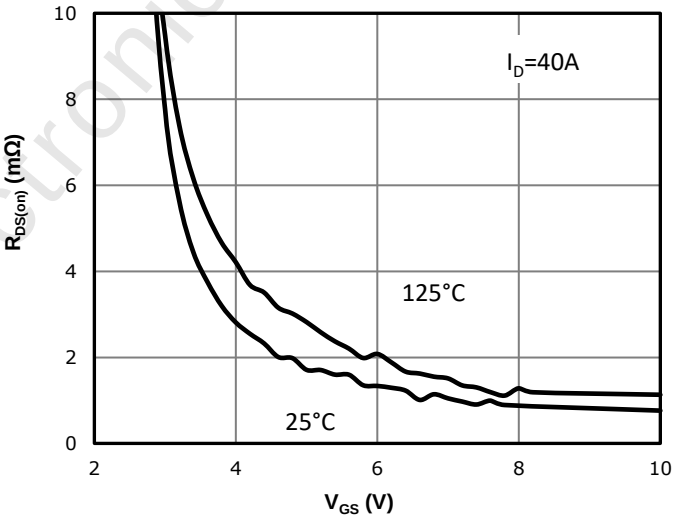


Fig 5: Rds(on) vs. Temperature

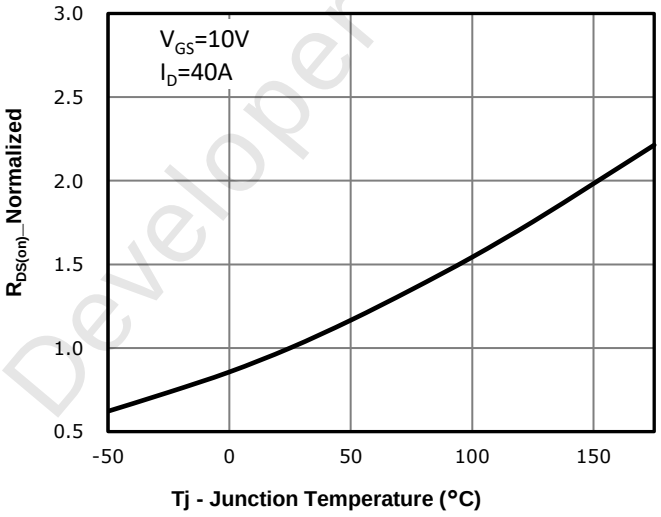
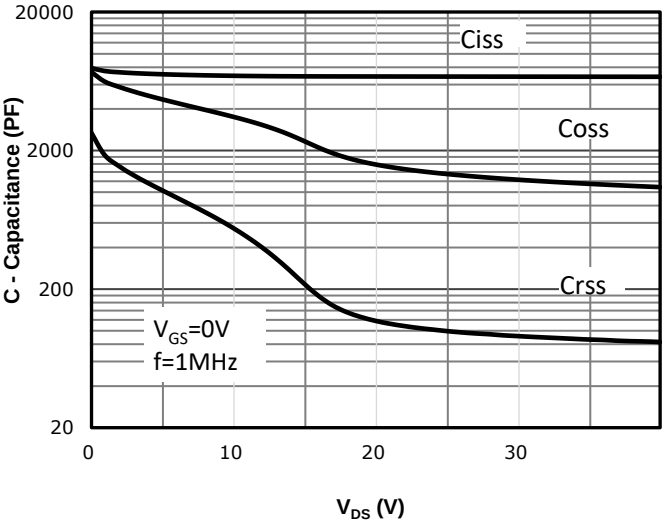


Fig 6: Capacitance Characteristics



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Fig 7: Gate Charge Characteristics

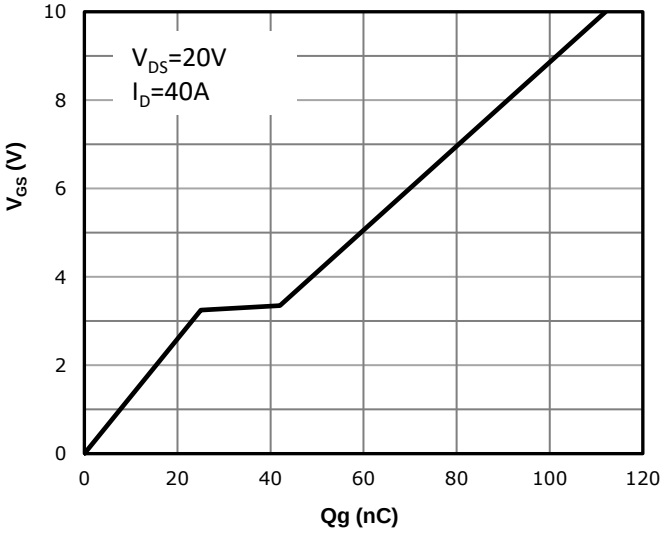


Fig 8: Body-diode Forward Characteristics

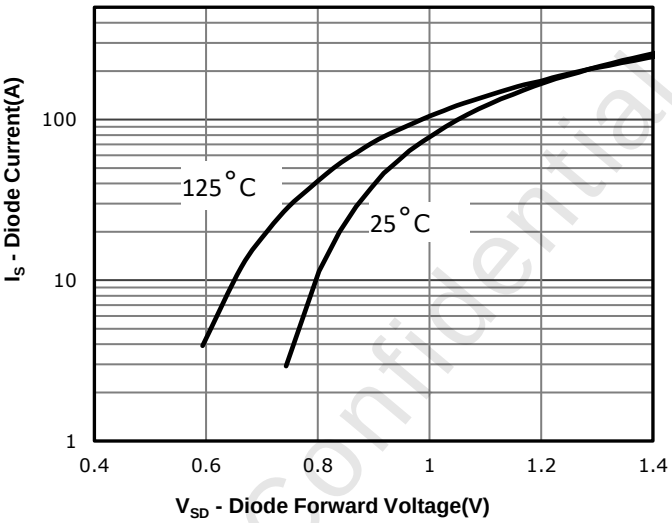


Fig 9: Power Dissipation

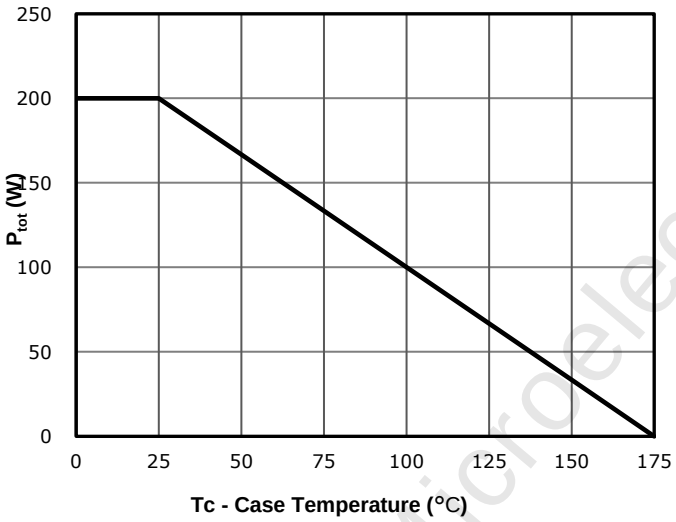


Fig 10: Drain Current Derating

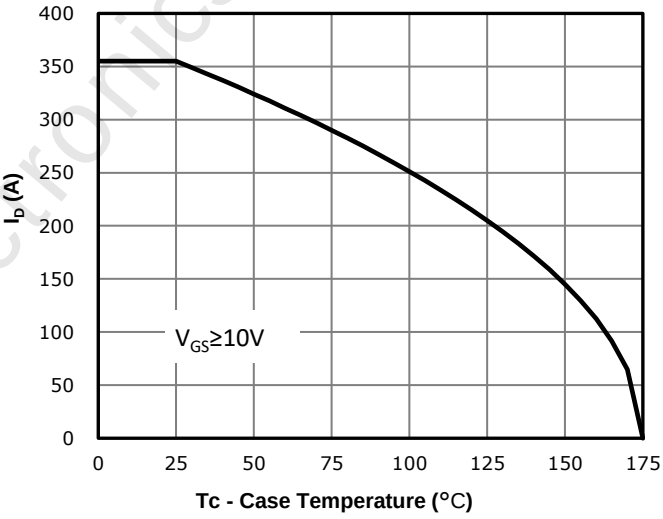
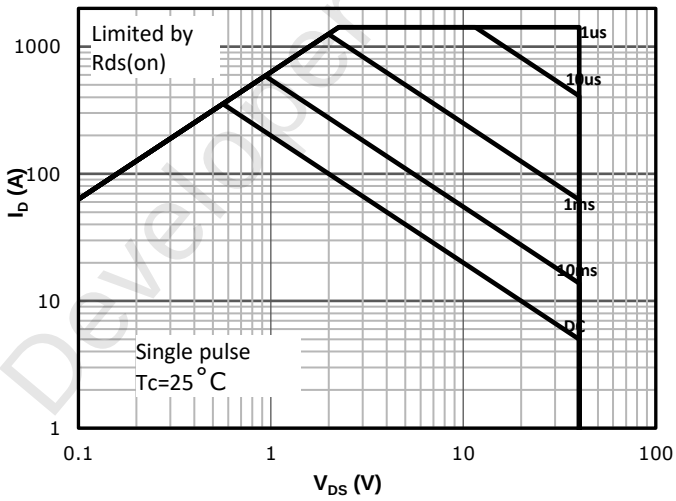
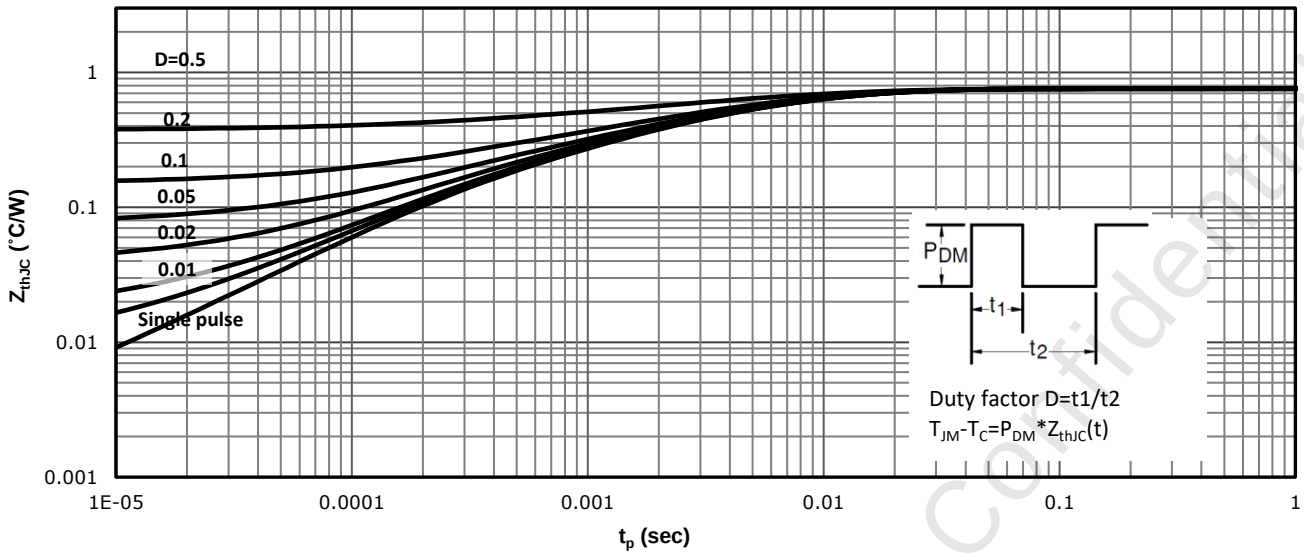


Fig 11: Safe Operating Area



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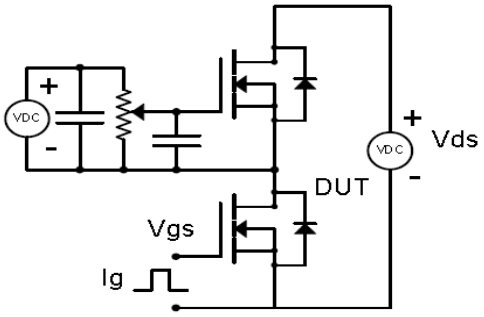
Fig 12: Max. Transient Thermal Impedance

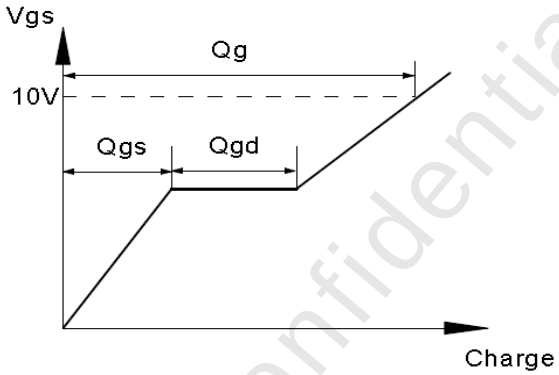


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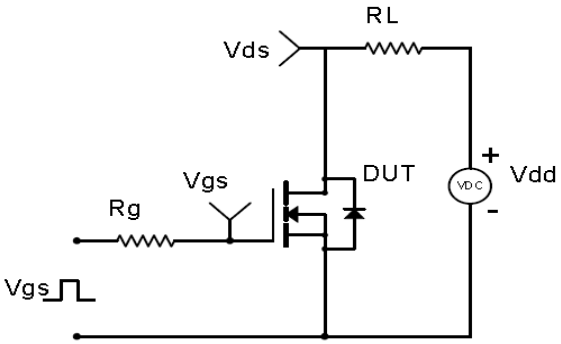
Test Circuit & Waveform

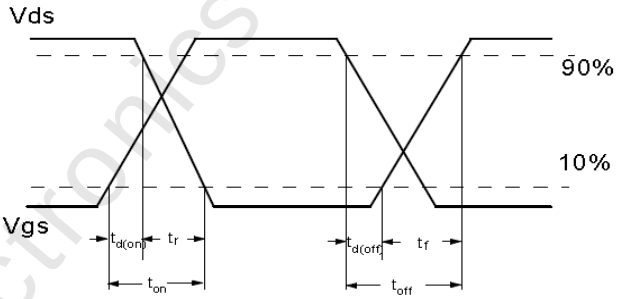
Gate Charge Test Circuit & Waveform



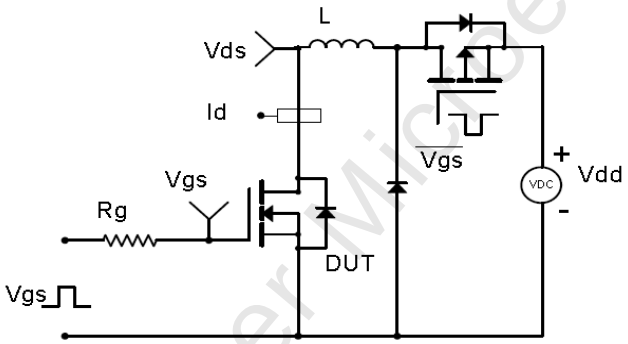


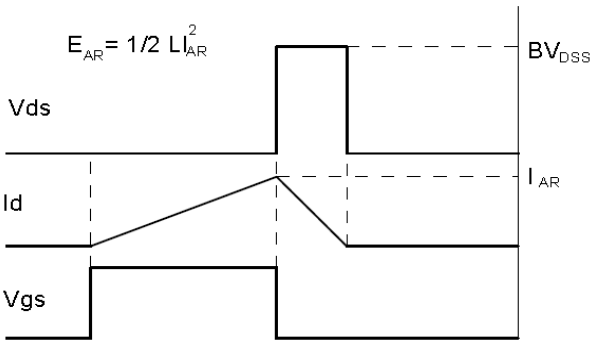
Resistive Switching Test Circuit & Waveforms



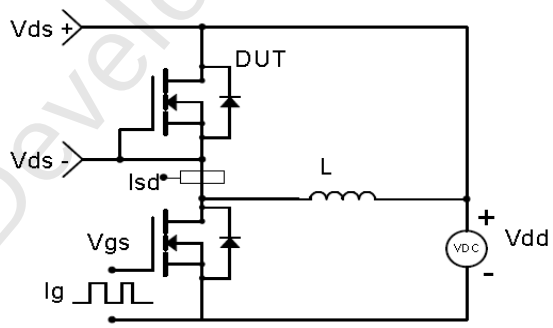


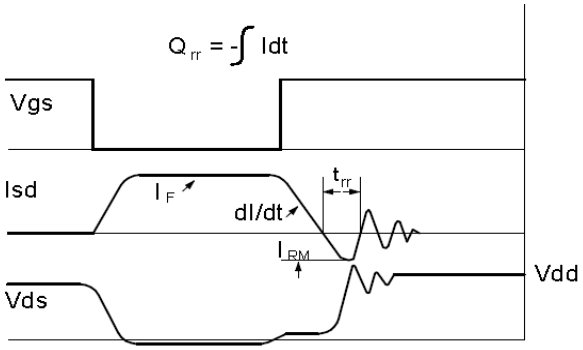
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms





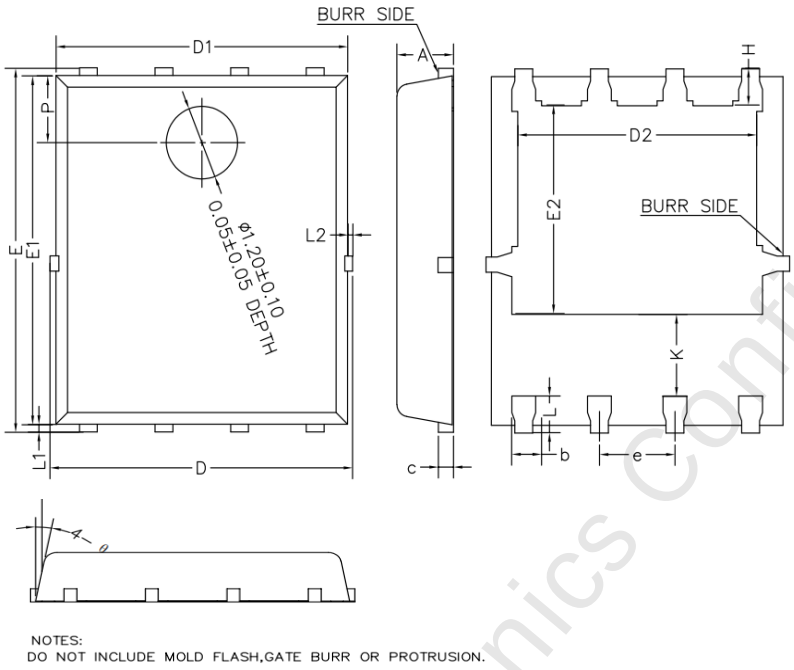
Diode Recovery Test Circuit & Waveforms





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Package Outline: DFN5x6

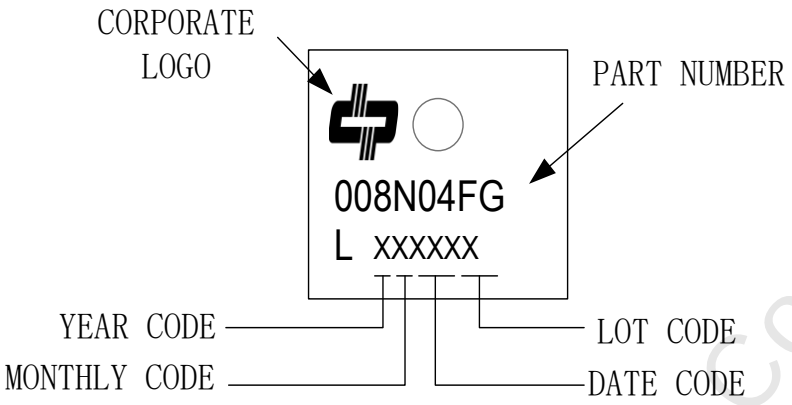


NOTES:
DO NOT INCLUDE MOLD FLASH,GATE BURR OR PROTRUSION.

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.00	1.20	0.039	0.047
b	0.35	0.45	0.014	0.018
c	0.21	0.34	0.008	0.013
D	-	5.10	-	0.201
D1	4.90	5.00	0.193	0.197
D2	3.91	4.11	0.154	0.162
e	1.17	1.37	0.046	0.054
E	5.90	6.10	0.232	0.240
E1	5.70	5.80	0.224	0.228
E2	3.34	3.54	0.131	0.139
H	0.51	0.71	0.020	0.028
K	1.10	-	0.043	-
L	0.51	0.71	0.020	0.028
L1	0.06	0.20	0.002	0.008
L2	-	0.10	-	0.004
P	1.00	1.10	0.039	0.043
θ	8°	12°	-	-

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Part Marking Information



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Revision History

Revison	Major changes
1.1	Release for formal version

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