DACO SEMICONDUCTOR

DAM009N150P1

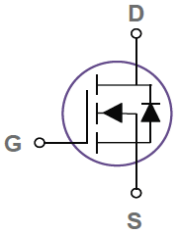
N-Channel Enhancement Mode MOSFET

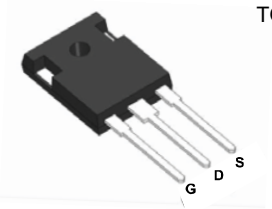
Preliminary

V_{DSS}	1500V
$I_{D(@25℃)}$	9A
$R_{DS(ON)}$	4Ω

Features

- Advanced Process Technology
- Ultra Low On-Resistance
- Dynamic dv/dt Rating
- Fast Switching
- Fully Avalanche Rated

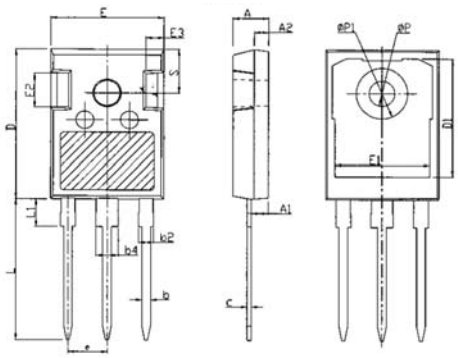




Package Dimensions

Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible Power Supply



Absolute Maximum Ratings

(Tc = 25℃ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain Source Voltage	V_{DS}	1500	V
Gate Source Voltage	V_{GS}	± 30	V
Drain Current Continuous @ T_C = 25°C	I_D	9	A
Drain Current Pulsed	I_{DM}	36	A
Single Pulse Avalanche Energy	E_{AS}	450	mJ
Power Dissipation @ T_C= 25°C	P_D	320	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55to +150	°C
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.39	°C/W

UNIT:mm			
Symbol	MIn.	Nom	Max.
A	4.80	5.00	5.20
A1	2.21	2.41	2.61
A2	1.85	2.00	2.15
b	1.11	1.21	1.36
b2	1.91	2.01	2.21
b4	2.91	3.01	3.21
c	0.51	0.61	0.75
D	20.70	21.00	21.30
D1	16.25	16.55	16.85
E	15.50	15.80	16.10
E1	13.00	13.30	13.60
E2	4.80	5.00	5.20
E3	2.30	2.50	2.70
e		5.44BSC	
L	19.62	19.92	20.22
L1	-	-	4.30
ØP	3.40	3.60	3.80
ØP1	-	-	7.30
S		6.15BSC	

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V，I_D =0.25mA	1500	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V，V_{DS}=1500V	-	-	1	μA
Gate To Source Forward Leakage	I_{GSS}	V_{GS}=±30V，V_{DS}=0V	-	-	±100	nA
ON Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}，I_D =0.25mA	2.5	-	4.5	V
Drain-Source On-State Resistance**	$R_{DS(on)}$	V_{GS}=10V，I_D =5.4A	-	2.8	4	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V	-	3380	-	pF
Output Capacitance	C_{oss}	V_{GS}=0V	-	178	-	
Reverse Transfer Capacitance	C_{rss}	Freq.=1MHz	-	54	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=750V	-	67	-	ns
Rise Time	t_r	V_{GS}=10V	-	189	-	
Turn-Off Delay Time	$t_{d(off)}$	I_D =9A	-	84	-	
Fall Time	t_f	R_G =25Ω	-	116	-	
Total Gate Charge	Q_g	V_{DS}=750V	-	70	-	nC
Gate to Source Charge	Q_{gs}	V_{GS}=10V	-	21	-	
Gate to Drain Charge	Q_{gd}	I_D =9A	-	23	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward Voltage**	V_{SD}	V_{GS}=0V，I_S=3A	-	-	1.3	V
Reverse Recovery Time	T_{rr}	V_{GS}=0V I_F=3A di/dt=100A/μs	-	461	-	ns
Reverse Recovery Charge	Q_{rr}		-	3.36	-	μC

*Repetitive Rating: Pulse width limited by maximum junction temperature

**Pulse Width < 300 μs, Duty Cycle < 2%.

Typical Performance Characteristics

Figure 1. Output Characteristics

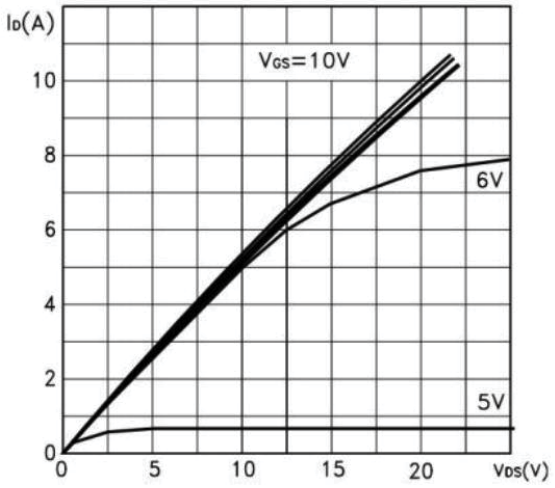


Figure 2. Drain-to-Source On Resistance vs Drain Current

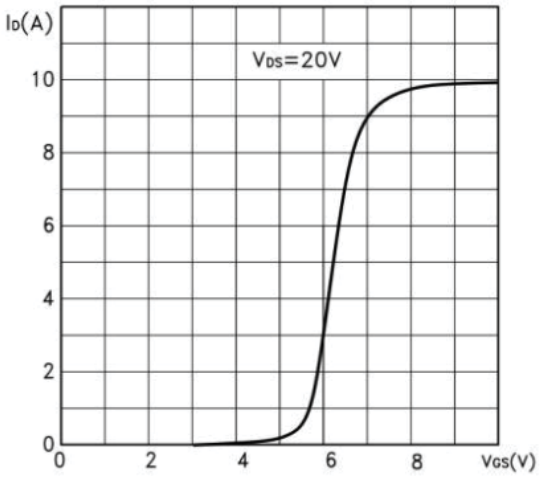


Figure 3. Normalized Breakdown Voltage vs Junction Temperature

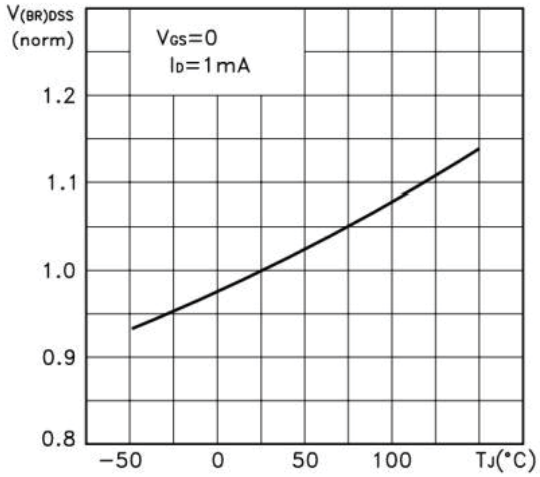


Figure 4. Drain-to-Source On Resistance vs Drain Current

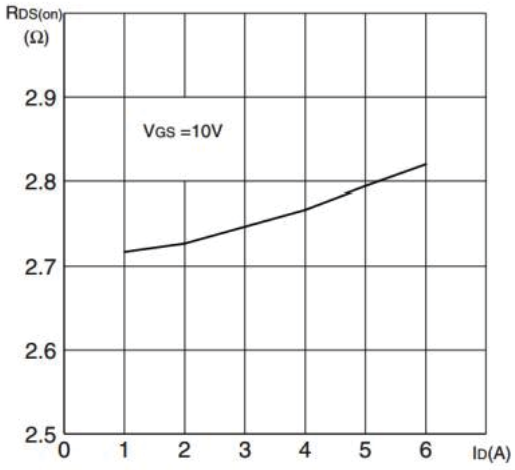


Figure 5. Gate Charge Characteristics

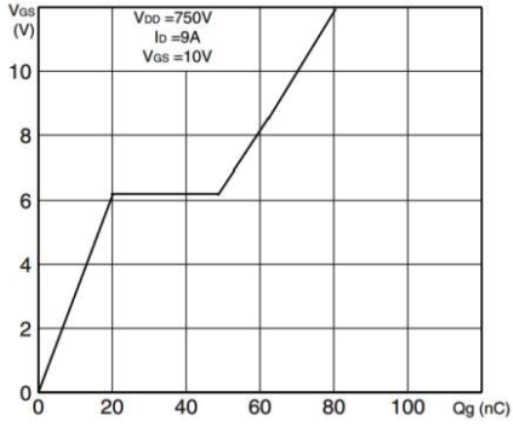
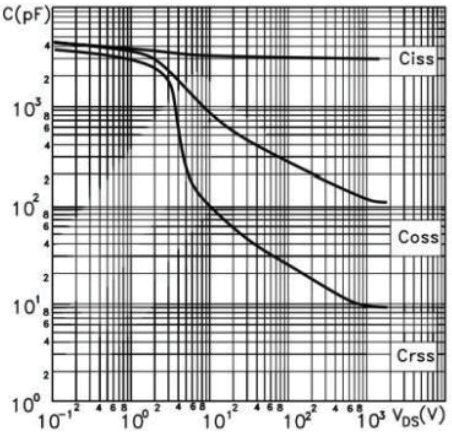


Figure 6. Capacitance Characteristics



Typical Performance Characteristics

Figure 7. Normalized Threshold Voltage vs Junction Temperature

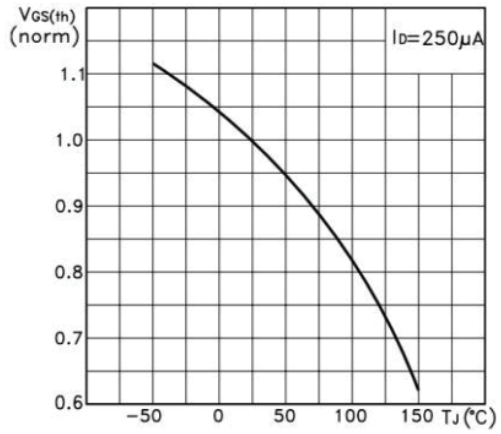


Figure 8. Normalized On Resistance vs Junction Temperature

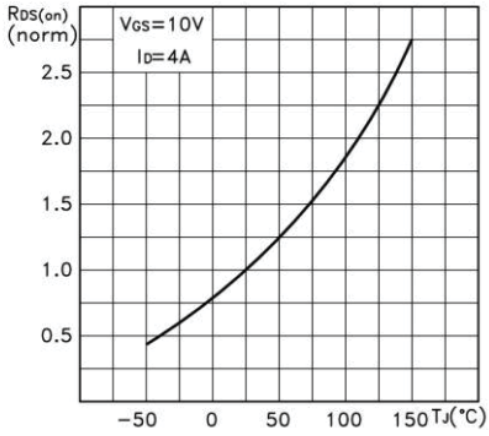


Figure 9. Body Diode Forward Voltage vs Source Current and Temperature

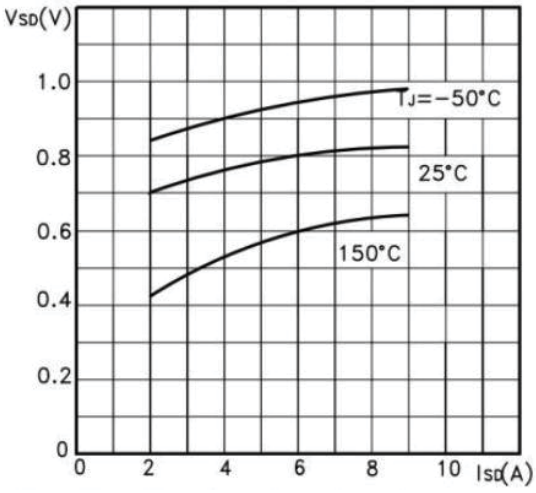


Figure 10. Maximum Safe Operating Area

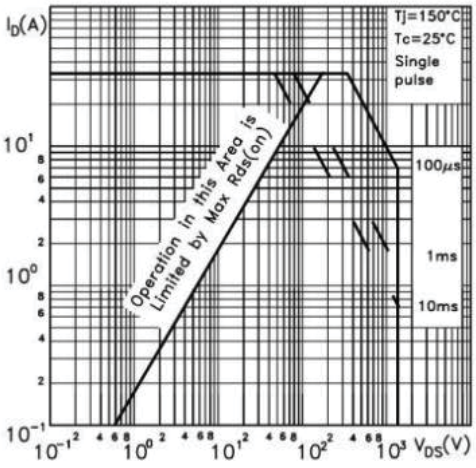
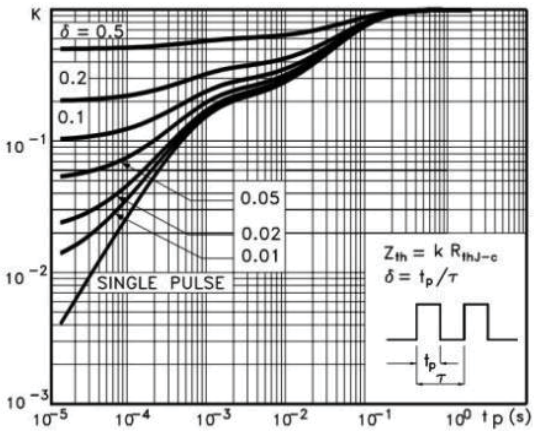


Figure 11. Maximum Effective Transient Thermal Impedance, Junction-to-Case



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