DAM277N006G1

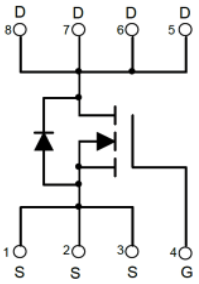
Surface Mount N-Channel MOSFET

Features

- Trench Power LV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

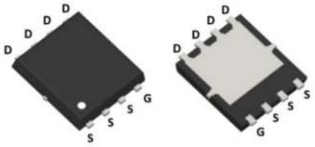
Applications

- High current load applications
- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

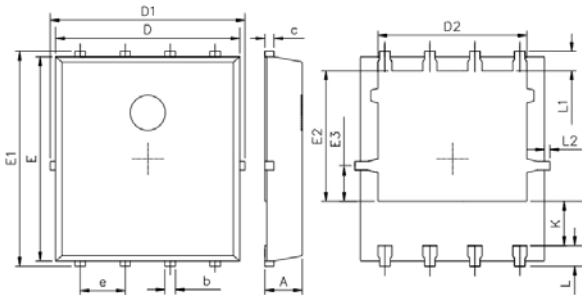


V_{DSS}	60V
$I_{D(@25℃)}$	277A
$R_{DS(ON)}$ max.	1.1mΩ

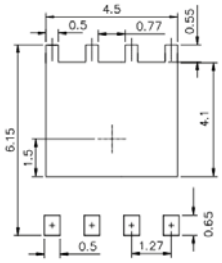
PPAK5x6



Package Dimensions



Recommended Land Pattern



UNIT:mm

DIM.	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.25	0.35	0.50
c	0.10	0.20	0.30
D	4.80	5.00	5.30
D1	4.90	5.10	5.50
D2	3.92	4.02	4.20
E	5.65	5.75	5.85
E1	5.90	6.05	6.20
E2	3.325	3.525	3.775
E3	0.80	0.90	1.00
e		1.27	
L	0.40	0.55	0.70
L1		0.65	
L2	0.00		0.15
K	1.00	1.30	1.50

Absolute Maximum Ratings

(Tc = 25℃ unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain Source Voltage		V_{DS}	60	V
Gate Source Voltage		V_{GS}	± 20	V
Drain Current Continuous	@ T_C= 25°C @ T_C= 100°C	I_D	277 175	A
Drain Current Pulsed		I_{DM}	1109	A
Single Pulse Avalanche Energy		E_{AS}	1040	mJ
Power Dissipation	@ T_C= 25°C	P_D	140	W
Storage Temperature Range		T_{STG}	-55 to +150	°C
Operating Junction Temperature Range		T_J	-55to +150	°C
Thermal Resistance Junction to Case Note1		$R_{\theta JC}$	0.68	°C/W

Notes:
1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.

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_{DS}=0.25mA	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V，V_{DS}=60V	-	-	1	μA
Gate To Source Forward Leakage	I_{GSS}	V_{GS}=±20V，V_{DS}=0V	-	-	±100	nA
ON Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}，I_D=0.25mA	2.0	3.0	4.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V，I_D=20A	-	0.9	1.1	mΩ
Gate Resistance	R_g	V_{DS} = V_{GS}=0V, f = 1.0MHz	-	2.4	-	Ω
Forward Transconductance	g_{fs}	V_{DS}=5V，I_D=20A	-	76	-	S
Dynamic Characteristics Note2						
Input Capacitance	C_{iss}	V_{DS}=30V V_{GS}=0V Freq.=1.0MHz	-	7204	-	pF
Output Capacitance	C_{oss}		-	3129	-	
Reverse Transfer Capacitance	C_{rss}		-	202	-	
Switching Characteristics Note2						
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=30V V_{GS}=10V I_D=20A R_G =3.0Ω	-	28	-	ns
Rise Time	t_r		-	45	-	
Turn-Off Delay Time	$t_{d(off)}$		-	73	-	
Fall Time	t_f		-	95	-	
Total Gate Charge	Q_g	V_{DS}=30V V_{GS}=10V I_{DS}=20A	-	108	-	nC
Gate to Source Charge	Q_{gs}		-	26	-	
Gate to Drain Charge	Q_{gd}		-	24	-	
Source-Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V，I_S=2A	-	-	1.2	V
Body Continuous Source Current	I_S	T_C=25°C	-	-	277	A
Reverse Recovery Time	T_{rr}	I_S=20A，T_J=25°C di/dt=100A/μs	-	73	-	ns
Reverse Recovery Charge	Q_{rr}		-	95	-	nC

Notes:
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.EAS condition: T_J =25℃, V_{DD} =30V, VG =10V, R_G =25Ω, L=1mH.
4.The power dissipation is limited by 150℃ junction temperature

Typical Performance Characteristics

Figure 1. Output Characteristics

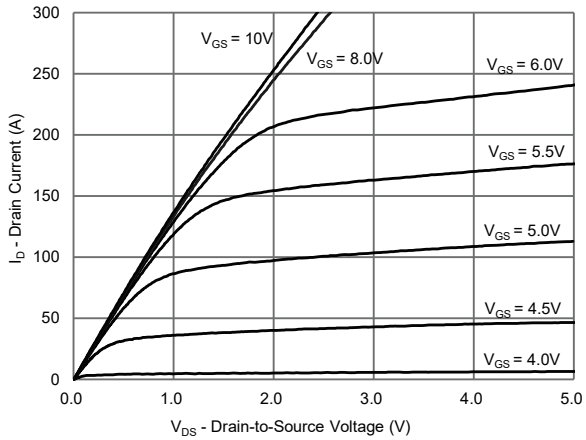


Figure 2. Transfer Characteristics

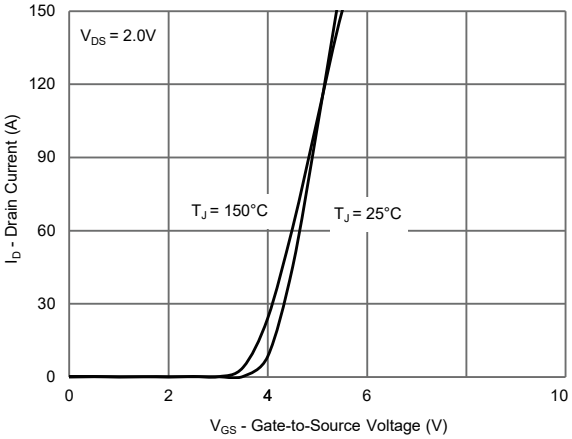


Figure 3. On-Resistance vs. Gate-Source Voltage

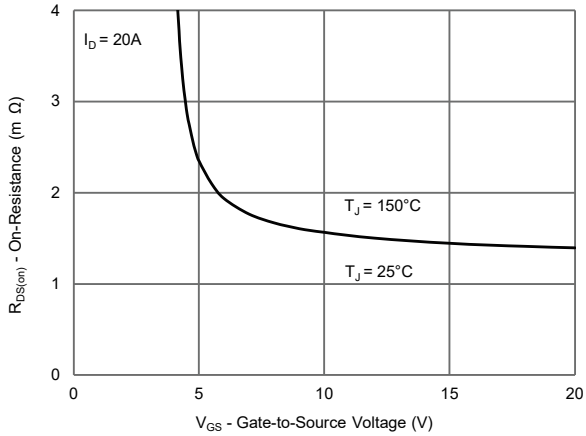


Figure 4. On-Resistance vs. Gate-Source Voltage

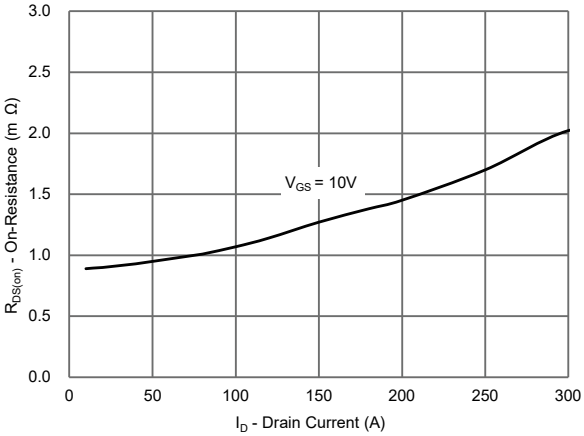


Figure 5. On-Resistance vs. Junction Temperature

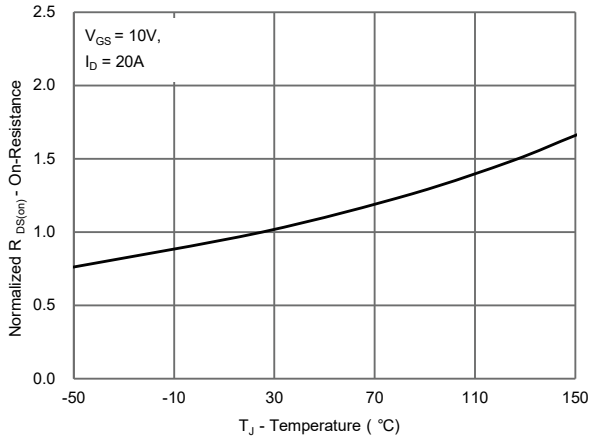
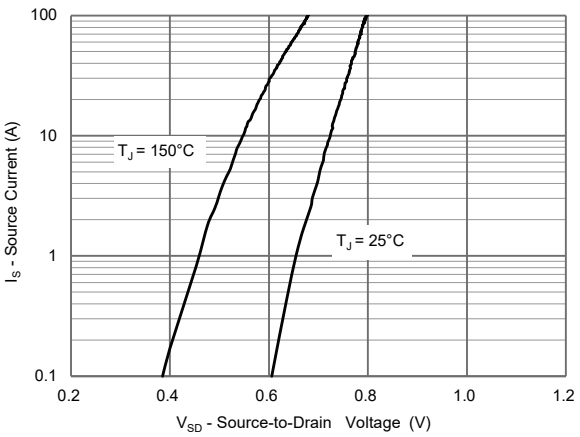


Figure 6. Source-Drain Diode Forward Voltage



Typical Performance Characteristics

Figure 7. Gate Threshold Variation vs. Junction Temperature

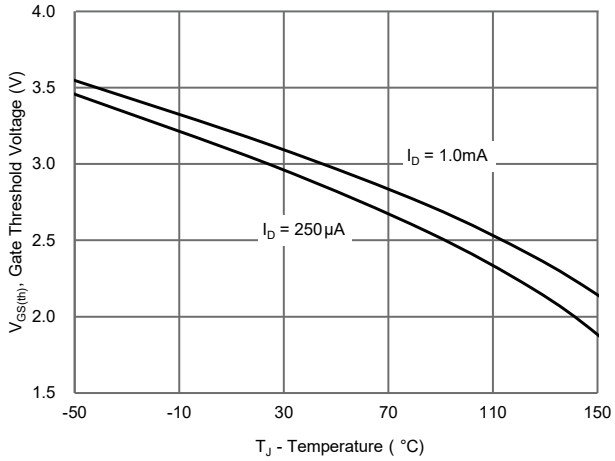


Figure 8. Gate Charge Characteristics

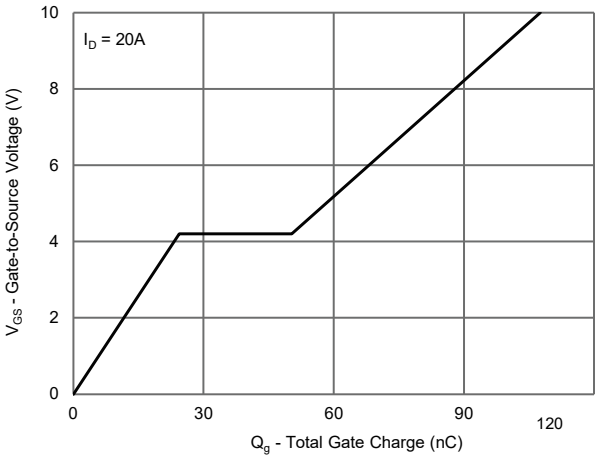


Figure 9. Capacitance Characteristics

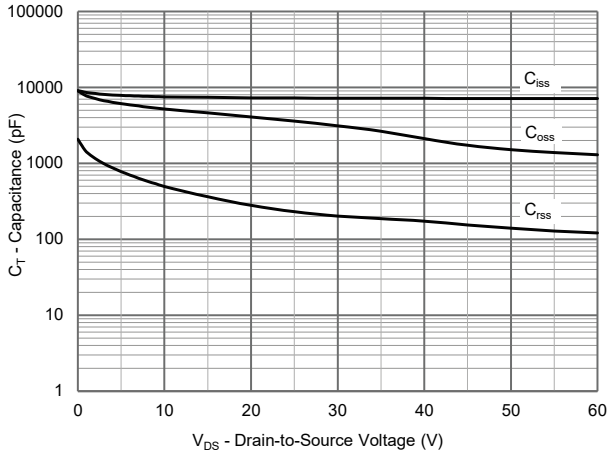


Figure 10.Power Derating

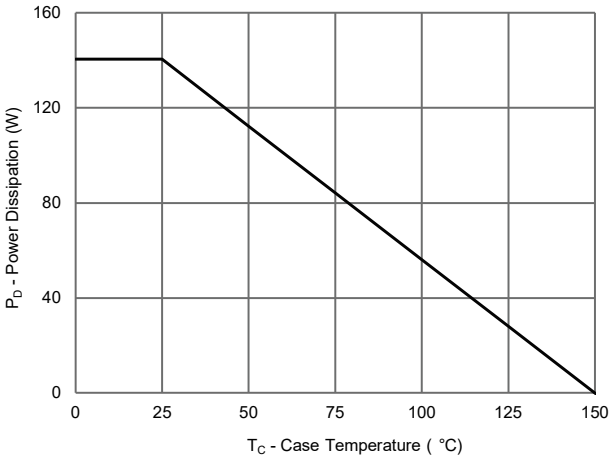


Figure 11. Current Derating

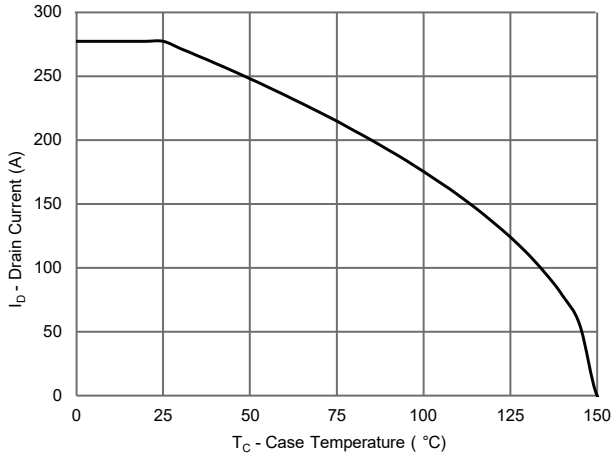
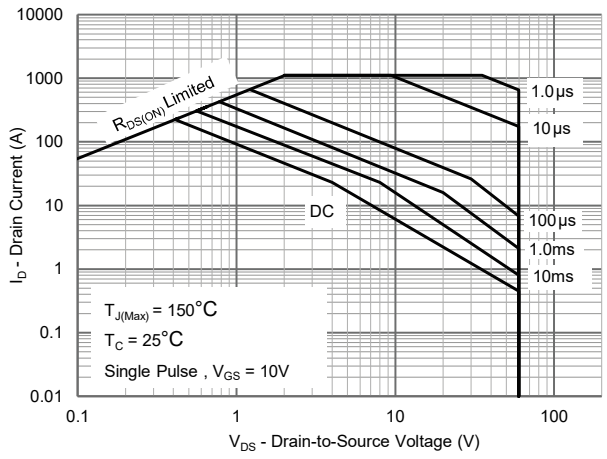
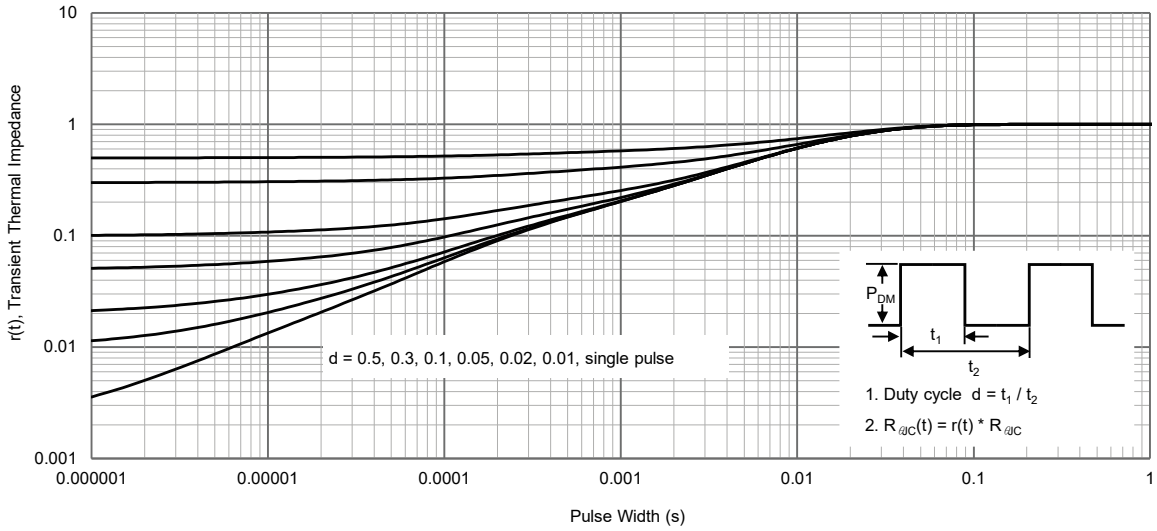


Figure 12. Safe Operating Area



Typical Performance Characteristics

Figure 13. Normalized Maximum Transient Thermal Impedance



Disclaimer

DACO Semiconductor reserves the right to make modifications, enhancements, improvements, corrections, or other changes to this document and any product described herein without prior notice.For the most up-to-date version, please visit our website.

DACO Semiconductor makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does DACO Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any liability, including without limitation special, consequential or incidental damages.

Purchasers are responsible for its products and applications using DACO Semiconductor products, including compliance with all laws, regulations, and safety requirements or standards, regardless of any support or application information provided by DACO Semiconductor. “Typical” parameters that may be provided in DACO Semiconductor datasheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including “Typical” must be validated for each customer application by the customer’s technical experts.

DACO Semiconductor products are not designed, authorized, or warranted to be suitable for use in life support, life-critical or safety-critical systems, or equipment, nor in applications where failure or malfunction of DACO Semiconductor’s product can reasonably be expected to result in personal injury, death or severe property or environmental damage. DACO Semiconductor accepts no liability for the inclusion and/or use of DACO Semiconductor’s products in such equipment or applications and therefore such inclusion and/or use is at the customer’s own risk.

Purchasers who buy or use DACO Semiconductor products for any unintended or unauthorized applications are required to indemnify and absolve DACO Semiconductor, its suppliers, and distributors from any claims, costs, damages, expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that DACO Semiconductor was negligent regarding the design or manufacture of the part.