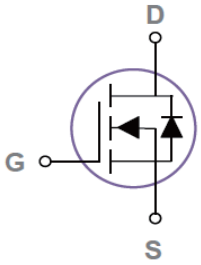
DACO SEMICONDUCTOR CO.,LTD.

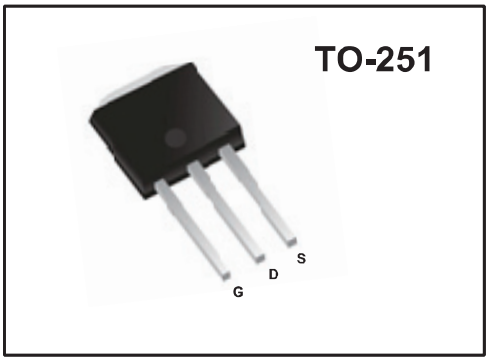
DAM2N650B

N-Channel Enhancement Mode MOSFET

Features

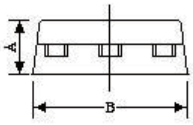
- V_{DSS} = 650V
- $R_{DS(ON)}$ Typ.7.5Ω @ V_{GS} = 10V
- Fully Avalanche Rated
- Pb Free & RoHS Compliant





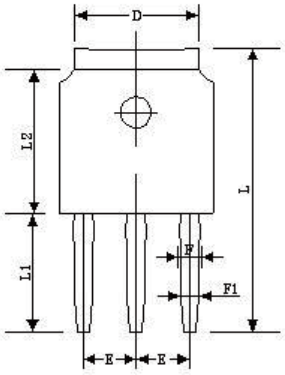
Applications

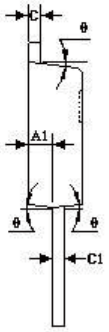
- Backlighting
- Power Converters
- Synchronous Rectifiers



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

Parameter	Symbol	Ratings	Unit
Drain Source Voltage	V_{DS}	650	V
Gate Source Voltage	V_{GS}	±30	V
Drain Current Continuous @ T_C = 25°C @ T_C = 100°C	I_D	2 1.3	A
Drain Current Pulsed@ T_C = 25°C	I_{DM}	8	A
Single Pulse Avalanche Energy	EAS	9	mJ
Single Pulse Avalanche Current	IAS	2.5	A
Maximum Power Dissipation	P_D	32	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction to Case Note3	$R_{\theta Jc}$	3.9	°C/W





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	2.400	2.200	0.094	0.087
A1	1.110	0.910	0.044	0.036
B	6.700	6.500	0.264	0.256
C	0.580	0.460	0.023	0.018
C1	0.580	0.460	0.023	0.018
D	5.460	5.100	0.215	0.201
E	2.386	2.186	0.094	0.086
F	0.940	0.740	0.037	0.029
F1	0.860	0.660	0.034	0.026
L	12.300	11.700	0.484	0.461
L1	5.200	4.800	0.205	0.189
L2	6.200	6.000	0.244	0.236
θ	9°	3°	9°	3°

Electrical Characteristics @ T_J=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}=250uA	650	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V , V_{DS}=650V	-	-	1	uA
Gate-Body Leakage	I_{GSS}	V_{GS}=±30V , V_{DS}=0V	-	-	±100	nA
ON Characteristics						
Gate Threshold Voltage	V_{TH}	V_{DS}=V_{GS} , I_{DS}=250uA	3	-	5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V , I_{DS}=1A	-	7.5	9	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V Freq.=1MHz	-	230	-	pF
Output Capacitance	C_{oss}		-	22	-	
Reverse Transfer Capacitance	C_{rss}		-	4	-	
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=300V V_{GS}=10V R_G =25Ω I_{DS}=2A	-	5	-	ns
Rise Time	T_r		-	16	-	
Turn-Off Delay Time	$T_{d(off)}$		-	10	-	
Fall Time	T_f		-	20	-	
Total Gate Charge	Q_g	V_{DS}=520V V_{GS}=10V I_{DS}=2A	-	7.5	-	nC
Gate to Source Charge	Q_{gs}		-	2.2	-	
Gate to Drain Charge	Q_{gd}		-	2.3	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=1A	-	-	1	V

Notes:

1.Pulse Test: Pulse Width ≦ 300μs, Duty Cycle ≦ 2%.

2. V_{DD}=50V,V_{GS}=10V,L=3mH,I_{AS}=2.5A.,R_G=25Ω, Starting T_J=25°C

3. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.

$R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design. $R_{\theta JA}$ shown below for single device operation on FR-4 in still air.

Typical Characteristics

Fig.1 Continuous Drain Current vs. T_C

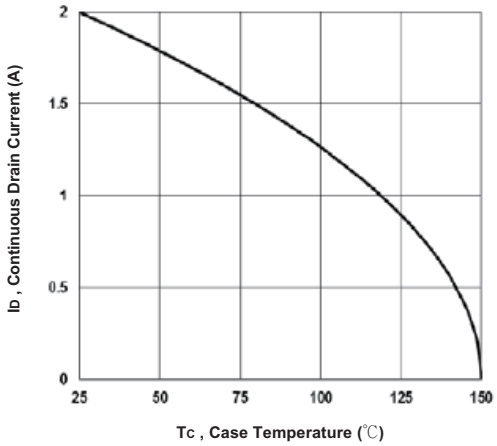


Fig.2 Normalized RDSON vs. T_J

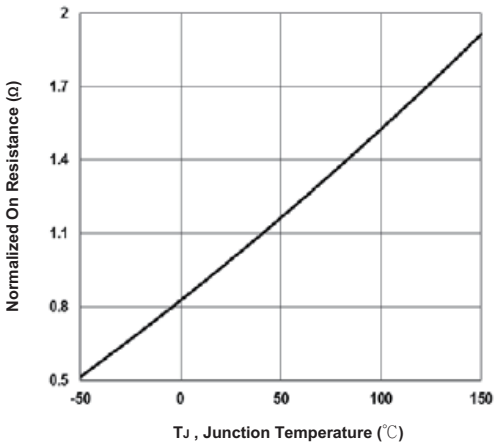


Fig.3 Normalized Vth vs. T_J

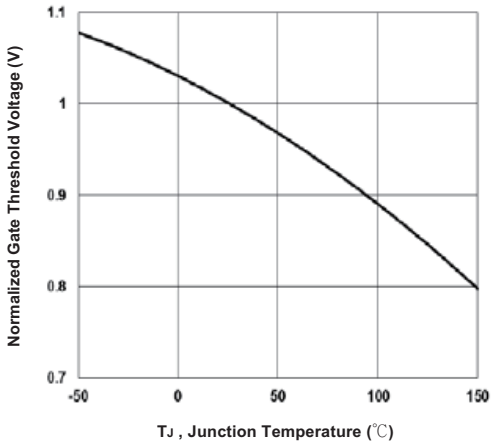


Fig.4 Gate Charge Waveform

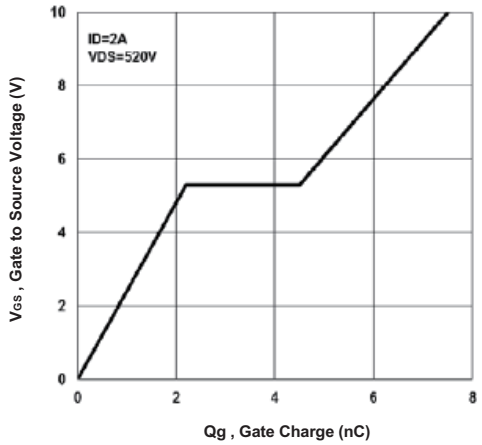


Fig.5 Normalized Transient Impedance

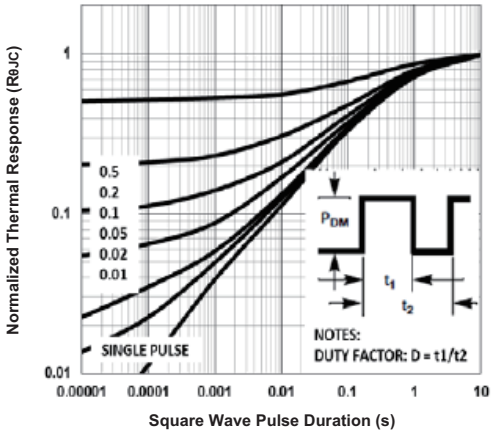
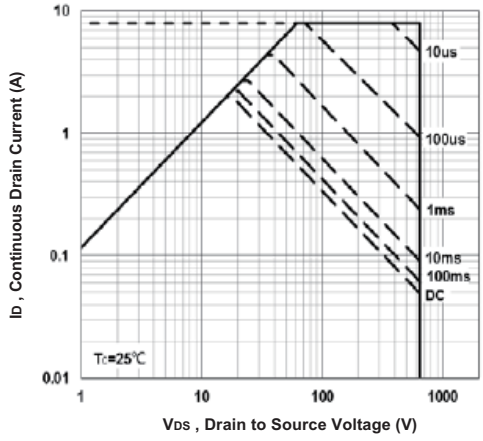


Fig.6 Maximum Safe Operation Area



Typical Characteristics

Fig.7 Switching Time Waveform

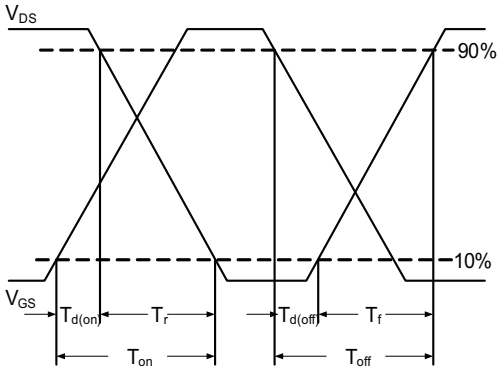


Fig.8 EAS Waveform

