



**DACO SEMICONDUCTOR CO., LTD.**

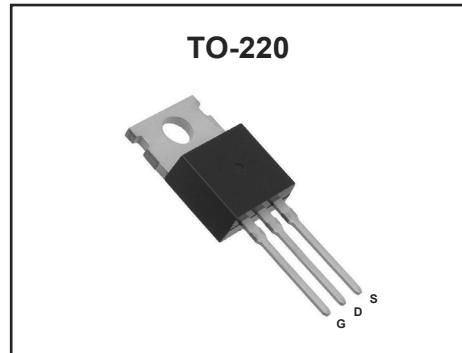
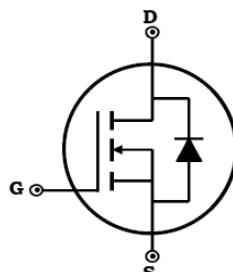
**DAM15N101C**

**T\$SEMIC**  
TRADE

## N-Channel Enhancement Mode MOSFET

### Features

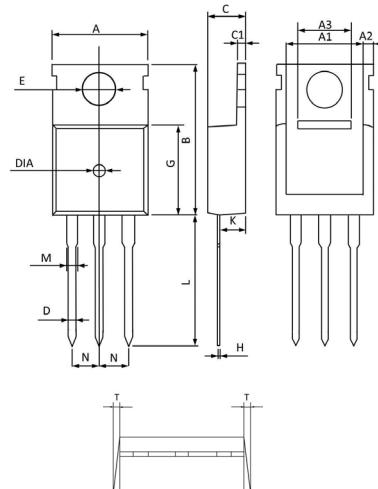
- ◆  $V_{DSS} = 100V$
- ◆  $R_{DS(ON)}$  Typ.  $3.5\text{ m}\Omega$  @  $V_{GS} = 10\text{ V}$
- ◆ Fully Avalanche Rated
- ◆ Pb Free & RoHS Compliant



### Applications

- ◆ Backlighting
- ◆ Power Converters
- ◆ Synchronous Rectifiers

Dimensions in inches and (millimeters)



### Absolute Maximum Ratings ( $TA=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	+20/-12	V
Drain Current-Continuous @ $T_c = 25^\circ\text{C}$ @ $T_c = 100^\circ\text{C}$	$I_D$	150 95	A
Drain Current-Pulsed @ $T_c = 25^\circ\text{C}$ Note1	$I_{DM}$	600	A
Maximum Power Dissipation	$P_D$	275	W
Storage Temperature Range	$T_{STG}$	-50 to +150	°C
Operating Junction Temperature Range	$T_J$	-50 to +150	°C
Thermal Resistance, Junction-to-Case Note3	$R_{\theta_{JC}}$	0.45	°C/W

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	10.300	9.700	0.406	0.382
A1	8.840	8.440	0.348	0.332
A2	1.250	1.050	0.049	0.041
A3	5.300	5.100	0.209	0.201
B	16.200	15.400	0.638	0.606
C	4.680	4.280	0.184	0.169
C1	1.500	1.100	0.059	0.043
D	1.000	0.600	0.039	0.024
E	3.800	3.400	0.150	0.134
G	9.300	8.700	0.366	0.343
H	0.600	0.400	0.024	0.016
K	2.700	2.100	0.106	0.083
L	13.600	12.800	0.535	0.504
M	1.500	1.100	0.059	0.043
N	2.590	2.490	0.102	0.098
T	W0.35		W0.014	
DIA	Φ1.5 TYP.	deep0.2 TYP.	Φ0.059 TYP.	deep0.008 TYP.



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**Electrical Characteristics @  $T_J = 25^\circ\text{C}$  (unless otherwise specified)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>OFF Characteristics</b>						
Drain-Source Breakdown Voltage	$\text{BV}_{\text{DSS}}$	$\text{V}_{\text{GS}}=0\text{V}$ , $\text{I}_{\text{DS}}=250\mu\text{A}$	100	-	-	V
Zero Gate Voltage Drain Current	$\text{I}_{\text{DSS}}$	$\text{V}_{\text{GS}}=0\text{V}$ , $\text{V}_{\text{DS}}=100\text{V}$	-	-	1	$\mu\text{A}$
Gate-Body Leakage	$\text{I}_{\text{GSS}}$	$\text{V}_{\text{GS}}=20\text{V}$ , $\text{V}_{\text{DS}}=0\text{V}$	-	-	100	nA
<b>ON Characteristics</b>						
Gate Threshold Voltage	$\text{V}_{\text{TH}}$	$\text{V}_{\text{DS}}=\text{V}_{\text{GS}}$ , $\text{I}_{\text{DS}}=250\mu\text{A}$	1.2	1.8	2.5	V
Static Drain-Source On-Resistance	$\text{R}_{\text{DS(on)}}$	$\text{V}_{\text{GS}}=10\text{V}$ , $\text{I}_{\text{DS}}=20\text{A}$	-	3.5	4.2	$\text{m}\Omega$
<b>Dynamic Characteristics</b>						
Input Capacitance	$\text{C}_{\text{iss}}$	$\text{V}_{\text{DS}}=25\text{V}$ $\text{V}_{\text{GS}}=0\text{V}$ Freq.=1MHz	-	6590	9900	pF
Output Capacitance	$\text{C}_{\text{oss}}$		-	1650	2500	
Reverse Transfer Capacitance	$\text{C}_{\text{rss}}$		-	340	550	
<b>Switching Characteristics</b>						
Turn-On Delay Time	$\text{T}_{\text{d(on)}}$	$\text{V}_{\text{DD}}=50\text{V}$ $\text{V}_{\text{GS}}=10\text{V}$ $\text{R}_G = 6\Omega$ $\text{I}_{\text{DS}}=1\text{A}$	-	23	46	ns
Rise Time	$\text{T}_r$		-	32	64	
Turn-Off Delay Time	$\text{T}_{\text{d(off)}}$		-	157	320	
Fall Time	$\text{T}_f$		-	115	230	
Total Gate Charge	$\text{Q}_g$	$\text{V}_{\text{DS}}=80\text{V}$ $\text{V}_{\text{GS}}=10\text{V}$ $\text{I}_{\text{DS}}=10\text{A}$	-	110	165	nC
Gate to Source Charge	$\text{Q}_{\text{gs}}$		-	11.5	18	
Gate to Drain Charge	$\text{Q}_{\text{gd}}$		-	28	42	
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage	$\text{V}_{\text{SD}}$	$\text{V}_{\text{GS}}=0\text{V}$ , $\text{I}_{\text{S}}=1\text{A}$	-	-	1.0	V

Notes:

- Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $> 2\%$ .
- $\text{V}_{\text{DD}}=25\text{V}$ ,  $\text{V}_{\text{GS}}=10\text{V}$ ,  $\text{L}=0.1\text{mH}$ ,  $\text{I}_{\text{AS}}=87\text{A}$ ,  $\text{R}_G=25\Omega$ , Starting  $\text{T}_J=25^\circ\text{C}$
- $\text{R}_{\text{JA}}$  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.

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



### Typical Characteristics

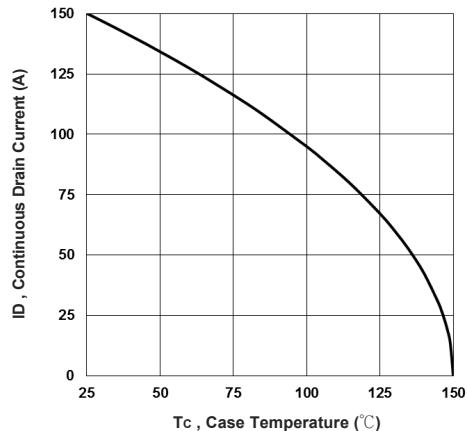


Fig.1 Continuous Drain Current vs.  $T_c$

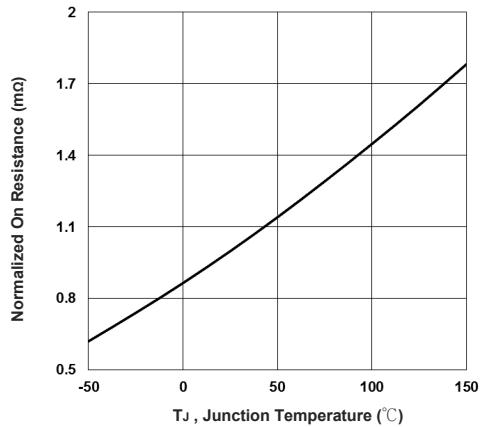


Fig.2 Normalized RD<sub>SON</sub> vs.  $T_j$

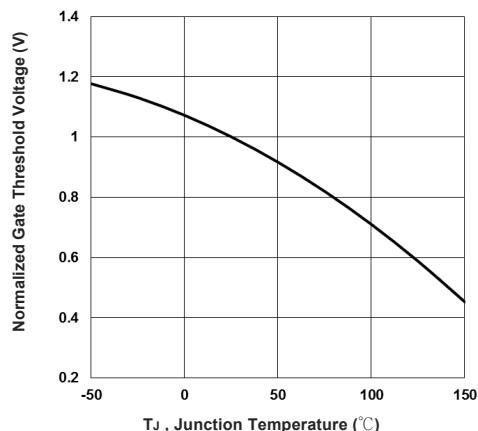


Fig.3 Normalized  $V_{th}$  vs.  $T_j$

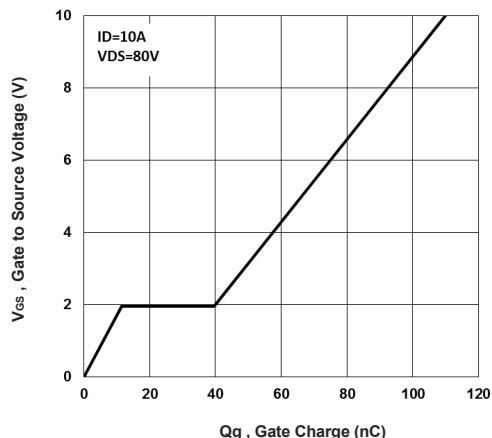


Fig.4 Gate Charge Characteristics

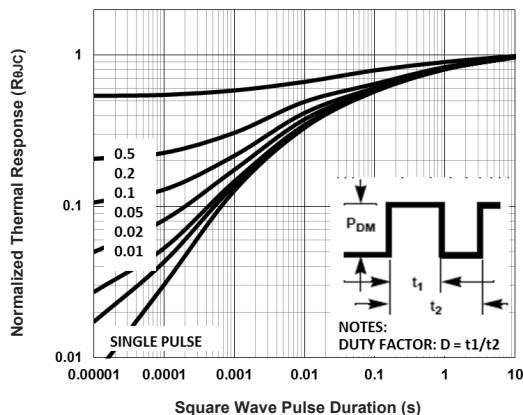


Fig.5 Normalized Transient Impedance

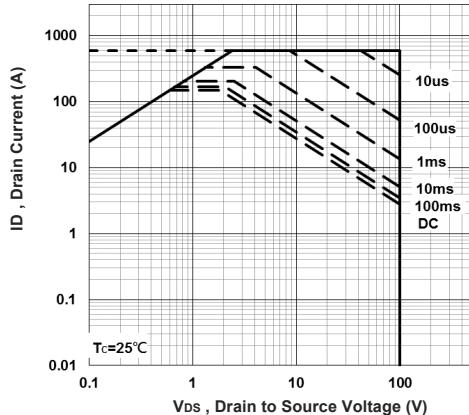


Fig.6 Maximum Safe Operation Area



### Typical Characteristics

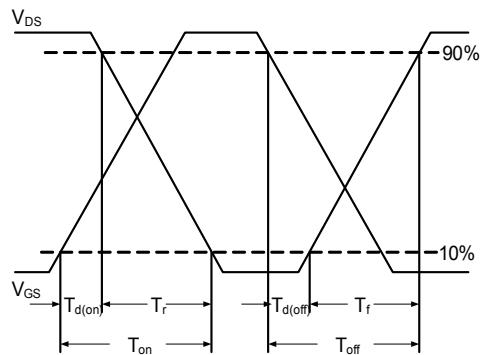


Fig.7 Switching Time Waveform

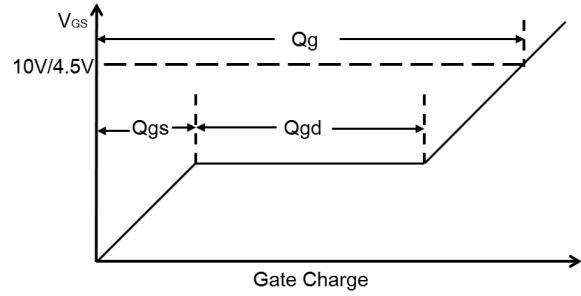


Fig.8 Gate Charge Waveform