



DAM13N10T

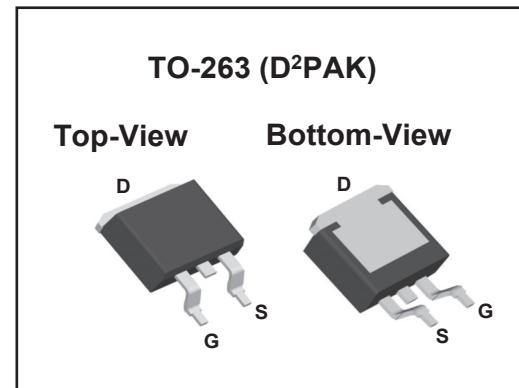
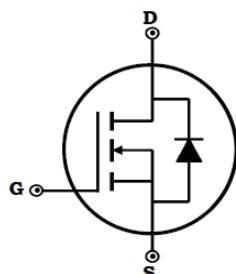
DACO SEMICONDUCTOR CO., LTD.

SEMIC  
TRADE

## N-Channel Enhancement Mode MOSFET

## Features

- ◆  $V_{DSS} = 100V$
- ◆  $R_{DS(ON)} < 6 \text{ m}\Omega @ V_{GS} = 10 \text{ V}$
- ◆ Fully Avalanche Rated
- ◆ Pb Free & RoHS Compliant



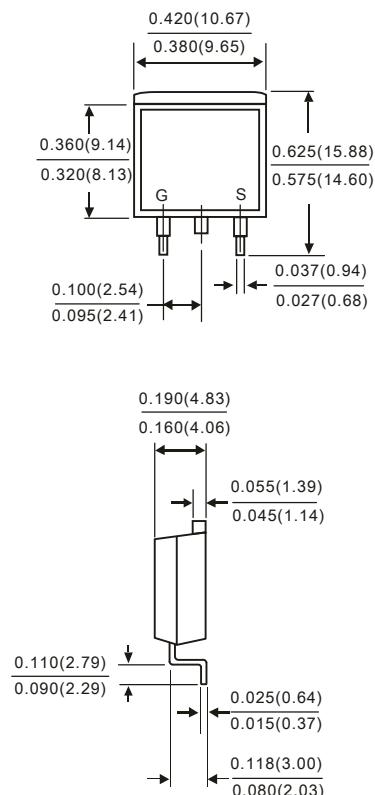
Dimensions in inches and (millimeters)

## Applications

- ◆ Backlighting
- ◆ Power Converters
- ◆ Synchronous Rectifiers

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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous @ $T_c = 25^\circ\text{C}$	$I_D$	130	A
Drain Current-Pulsed @ $T_c = 25^\circ\text{C}$ Note1	$I_{DM}$	260	A
Maximum Power Dissipation	$P_D$	250	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 Note2	$R_{\theta_{JC}}$	0.5	°C/W



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	$\text{I}_{\text{DSS}}$	$\text{V}_{\text{GS}}=0\text{V}$ , $\text{V}_{\text{DS}}=80\text{V}$	-	-	1	$\mu\text{A}$
Gate-Body Leakage	$\text{I}_{\text{GSS}}$	$\text{V}_{\text{GS}}=\pm 20\text{V}$ , $\text{V}_{\text{DS}}=0\text{V}$	-	-	$\pm 100$	$\text{nA}$
<b>ON Characteristics</b>						
Gate Threshold Voltage	$\text{V}_{\text{TH}}$	$\text{V}_{\text{DS}}=\text{V}_{\text{GS}}$ , $\text{I}_{\text{DS}}=250\mu\text{A}$	2.5	-	4.5	V
Drain-Source On-State Resistance	$\text{R}_{\text{DS}}$	$\text{V}_{\text{GS}}=10\text{V}$ , $\text{I}_{\text{DS}}=100\text{A}$	-	-	6	$\text{m}\Omega$
<b>Dynamic Characteristics</b>						
Input Capacitance	$\text{C}_{\text{iss}}$	$\text{V}_{\text{DS}}=30\text{V}$	-	5100	-	pF
Output Capacitance	$\text{C}_{\text{oss}}$	$\text{V}_{\text{GS}}=0\text{V}$	-	780	-	
Reverse Transfer Capacitance	$\text{C}_{\text{rss}}$	Freq.=1MHz	-	280	-	
<b>Switching Characteristics</b>						
Turn-On Delay Time	$t_{\text{d(on)}}$	$\text{V}_{\text{DS}}=50\text{V}$ $\text{V}_{\text{GS}}=10\text{V}$ $\text{I}_{\text{DS}}=10\text{A}$	-	27	-	ns
Rise Time	$t_r$		-	21	-	
Turn-Off Delay Time	$t_{\text{d(off)}}$		-	43	-	
Fall Time	$t_f$		-	14	-	
Total Gate Charge at 10V	$\text{Q}_g$	$\text{V}_{\text{DS}}=50\text{V}$ $\text{V}_{\text{GS}}=10\text{V}$ $\text{I}_{\text{DS}}=10\text{A}$	-	102	-	nC
Gate to Source Gate Charge	$\text{Q}_{\text{gs}}$		-	18	-	
Gate to Drain "Miller" Charge	$\text{Q}_{\text{gd}}$		-	31	-	
<b>Drain-Source Diode Characteristics</b>						
Drain-Source Diode Forward Voltage	$\text{V}_{\text{SD}}$	$\text{V}_{\text{GS}}=0\text{V}$ , $\text{I}_{\text{S}}=1\text{A}$	0.4	-	1.0	V

## Notes:

- Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $> 2\%$ .
  - $R_{\text{thJA}}$  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.
- $R_{\text{thJC}}$  is guaranteed by design while  $R_{\text{thCA}}$  is determined by the user's board design.  $R_{\text{thJA}}$  shown below for single device operation on FR-4 in still air.



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### Typical Characteristics

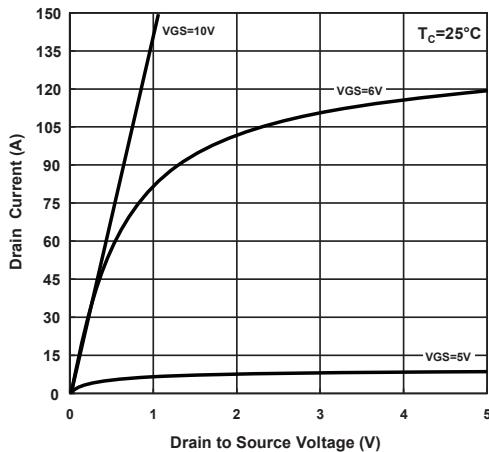


Fig 1. Typical Output Characteristics

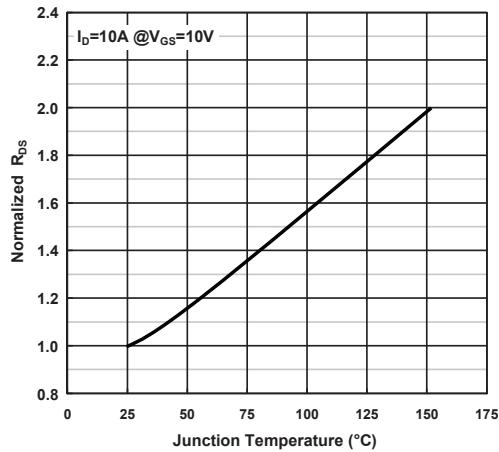


Fig 2. On-Resistance vs. Temperature

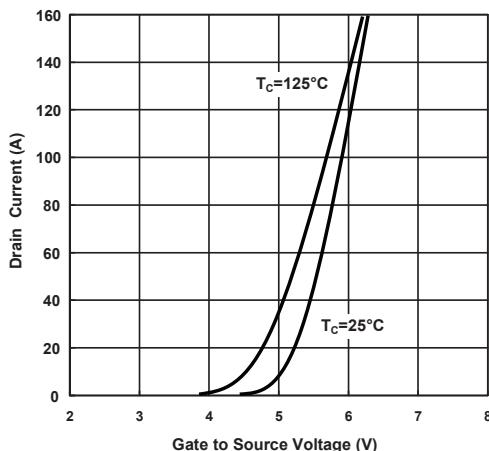


Fig 3. Transfer Characteristics

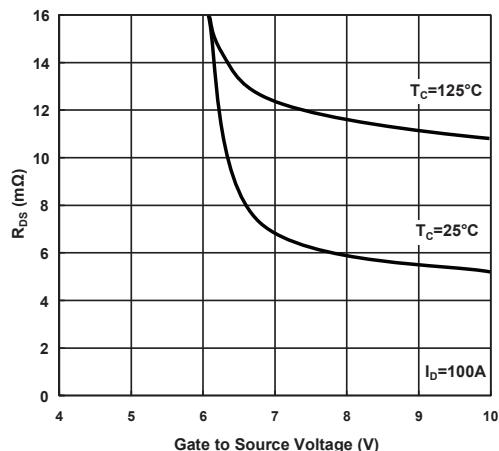


Fig 4. On-Resistance vs. Gate-to-Source Voltage.

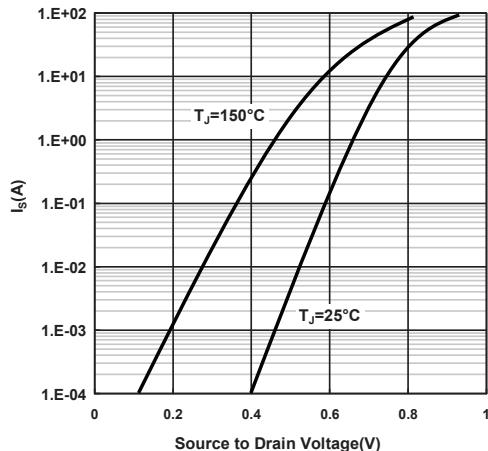


Fig 5. Body-Diode Characteristics

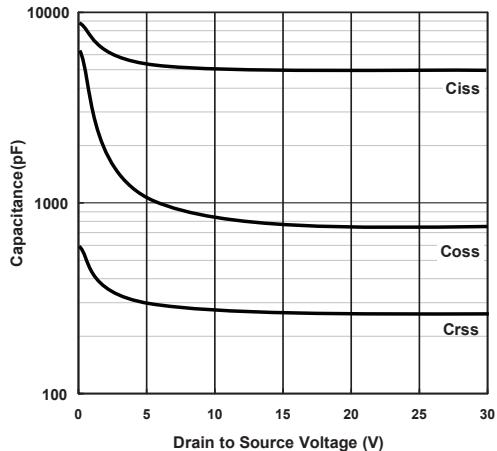


Fig 6. Capacitance Characteristics.



## Typical Characteristics

