



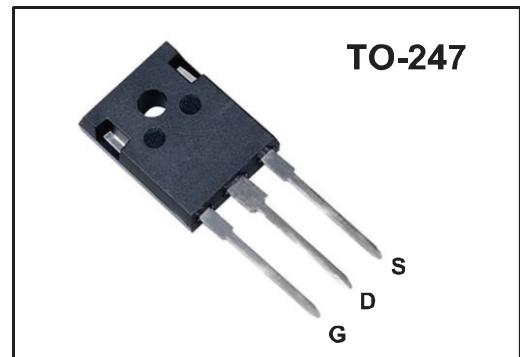
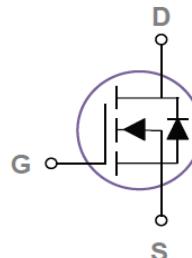
DACO SEMICONDUCTOR CO., LTD.

DAMJ17N800P

N-Channel Enhancement Mode MOSFET

Features

- ◆ $V_{DSS} = 800V$
- ◆ $R_{DS(ON)}$ Typ. 0.26Ω @ $V_{GS} = 10V$
- ◆ High ruggedness performance
- ◆ Super-Junction technology
- ◆ Pb Free & RoHS Compliant

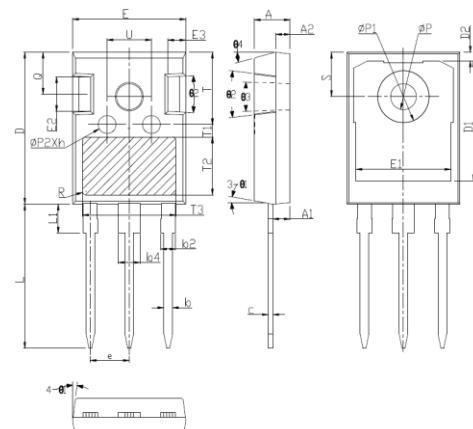


Applications

- ◆ Backlighting
- ◆ Power Converters
- ◆ Synchronous Rectifiers

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

Parameter	Symbol	Ratings	Unit
Drain Source Voltage	V_{DS}	800	V
Gate Source Voltage	V_{GS}	± 30	V
Drain Current Continuous @ $T_c = 25^\circ C$ @ $T_c = 100^\circ C$	I_D	17 10.7	A
Drain Current Pulsed@ $T_c = 25^\circ C$	I_{DM}	68	A
Single Pulse Avalanche Energy	EAS	1014	mJ
Single Pulse Avalanche Current	IAS	4.2	A
Maximum Power Dissipation	P_D	277	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 <small>Note3</small>	$R_{θJC}$	0.45	°C/W



Symbol	Dimensions In Millimeters			Symbol	Dimensions In Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	4.75	5.00	5.25	L	19.52	19.92	20.32
A1	2.16	2.41	2.66	L1	—	—	4.30
A2	1.85	2.00	2.15	ΦP	3.35	3.60	3.85
b	1.11	1.20	1.35	ΦP1	—	—	7.30
b2	1.90	2.01	2.25	ΦP2	2.25	2.50	2.75
b4	2.90	3.10	3.25	Q	5.50	5.80	6.10
c	0.51	0.61	0.75	S	6.15BSC		
D	20.60	21.00	21.40	R	0.50REF		
D1	16.15	16.55	16.95	T	9.70	—	10.30
D2	1.00	1.20	1.40	T1	1.65REF		
E	15.50	15.80	16.10	T2	8.00REF		
E1	13.00	13.30	13.60	T3	12.80REF		
E2	4.70	5.00	5.30	U	5.90	—	6.50
E3	2.25	2.50	2.75	θ1	3°	7°	10°
e	5.44BSC			θ2	2°	5°	8°
h	0.00	0.10	0.25	θ3	1°	—	2°
				θ4	10°	15°	20°



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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_{\text{DS}}=250\mu\text{A}$	800	-	-	V
Zero Gate Voltage Drain Current	I_{DS}	$\text{V}_{\text{GS}}=0\text{V}$, $\text{V}_{\text{DS}}=800\text{V}$	-	-	1	μA
Gate-Body Leakage	I_{GSS}	$\text{V}_{\text{GS}}=\pm 30\text{V}$, $\text{V}_{\text{DS}}=0\text{V}$	-	-	100	nA
ON Characteristics						
Gate Threshold Voltage	V_{TH}	$\text{V}_{\text{DS}}=\text{V}_{\text{GS}}$, $\text{I}_{\text{DS}}=250\mu\text{A}$	2.5	3.5	4.5	V
Static Drain-Source On-Resistance	$\text{R}_{\text{DS(on)}}$	$\text{V}_{\text{GS}}=10\text{V}$, $\text{I}_{\text{DS}}=20\text{A}$	-	0.26	0.35	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	$\text{V}_{\text{DS}}=25\text{V}$ $\text{V}_{\text{GS}}=0\text{V}$ Freq.=1MHz	-	1650	-	pF
Output Capacitance	C_{oss}		-	580	-	
Reverse Transfer Capacitance	C_{rss}		-	25	-	
Switching Characteristics						
Turn-On Delay Time	$\text{T}_{\text{d(on)}}$	$\text{V}_{\text{DD}}=30\text{V}$ $\text{V}_{\text{GS}}=10\text{V}$ $\text{R}_G=6\Omega$ $\text{I}_{\text{DS}}=0.5\text{A}$	-	80	-	ns
Rise Time	T_r		-	70	-	
Turn-Off Delay Time	$\text{T}_{\text{d(off)}}$		-	650	-	
Fall Time	T_f		-	190	-	
Total Gate Charge	Q_g	$\text{V}_{\text{DS}}=50\text{V}$ $\text{V}_{\text{GS}}=10\text{V}$ $\text{I}_{\text{DS}}=1.3\text{A}$	-	57.2	-	nC
Gate to Source Charge	Q_{gs}		-	6.3	-	
Gate to Drain Charge	Q_{gd}		-	27.4	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_{\text{s}}=1\text{A}$	-	-	1	V

Notes:

1. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

2. $\text{V}_{\text{DD}}=25\text{V}$, $\text{V}_{\text{GS}}=10\text{V}$, $L=115\text{mH}$, $\text{I}_{\text{AS}}=4.2\text{A}$, $\text{R}_G=25\Omega$, Starting $T_J=25^\circ\text{C}$

3. $\text{R}_{\theta_{JA}}$ 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.

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



Typical Characteristics

Fig.1 Continuous Drain Current vs. T_c

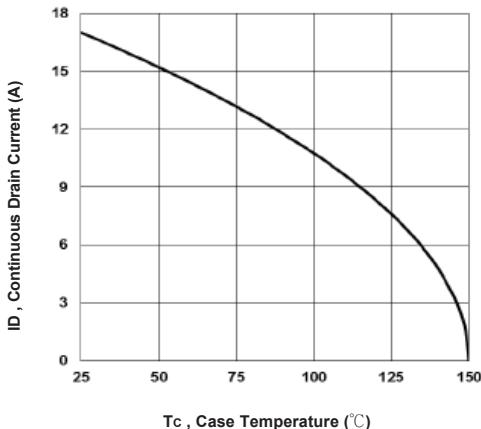


Fig.2 Normalized RDSON vs. T_J

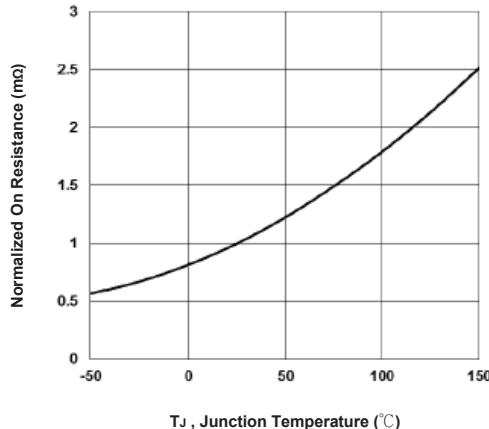


Fig.3 Normalized V_{th} vs. T_J

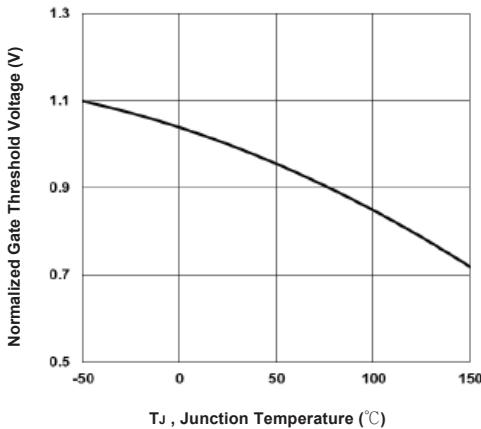


Fig.4 Gate Charge Characteristics

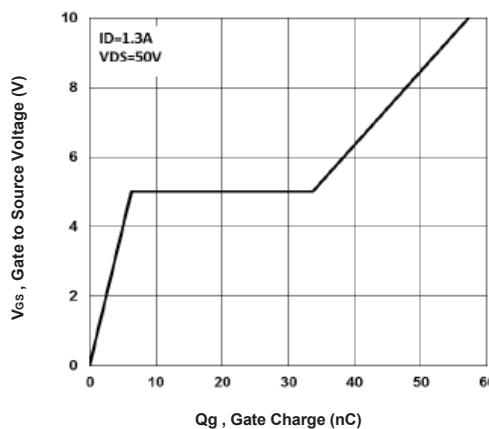


Fig.5 Normalized Transient Impedance

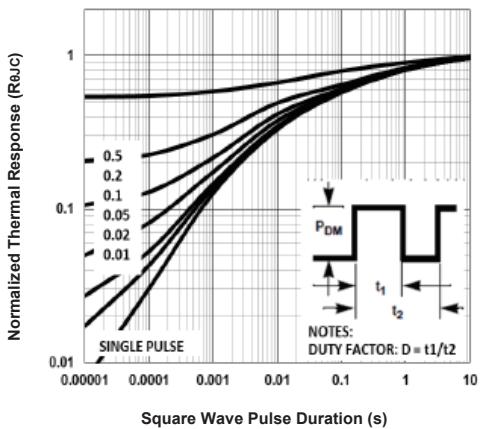
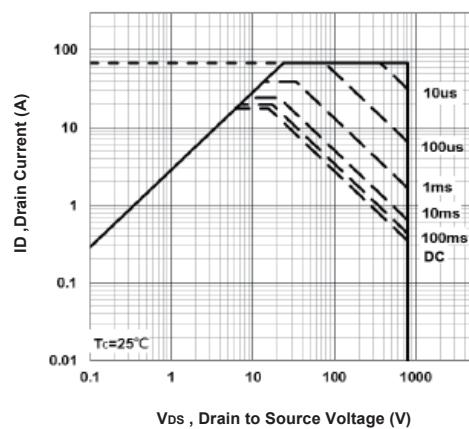


Fig.6 Maximum Safe Operation Area





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Typical Characteristics

Fig.7 Switching Time Waveform

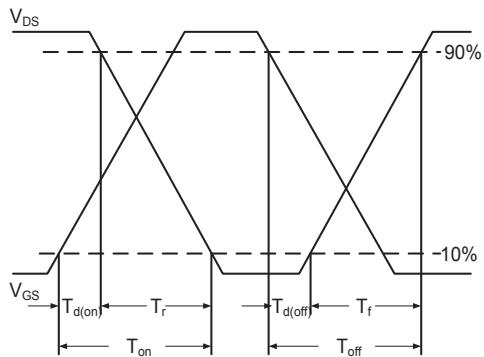


Fig.8 Gate Charge Waveform

