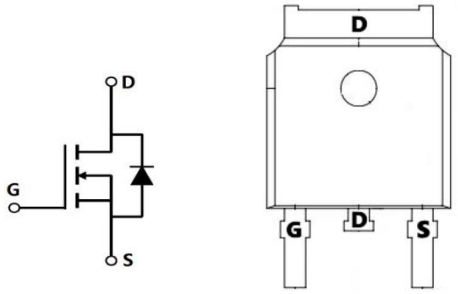
DAM015N010D1

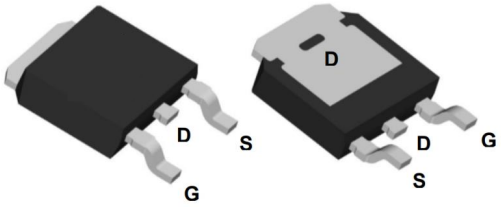
100V N-Channel Enhancement Mode MOSFET

General Features

V_{DS}	I_D	$R_{DS(ON)}$ Type @ V_{GS}=10V	$R_{DS(ON)}$ Type @ V_{GS}=4.5V
100V	15A	80 mΩ	90 mΩ

TO-252-3L





Description

The DAM015N010D1 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

Application

- Automative lighting
- Load switch
- Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Qty(PCS)
DAM015N010D1	TO-252-3L	3000

Absolute Maximum Ratings (TC=25℃unless othe rwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	VDS	100	V
Gate-Source Voltage	VGS	±20	V
Drain Current, V_{GS} @ 10V	I_D@T_C=25℃	15	A
Drain Current, V_{GS} @ 10V	I_D@T_C=100℃	8.1	A
Pulsed Drain Current[1]	IDM	28	A
Total Power Dissipation	P_D@T_C=25℃	20.8	W
Total Power Dissipation[3]	P_D@T_A=25℃	2	W
Storage Temperature Range	TSTG	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃
Maximum Thermal Resistance, Junctionambient	RθJA	62.5	℃/W
Maximum Thermal Resistance, Junction-case	RθJC	6	℃/W

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Type	Max.	Units
Drain-Source Breakdown Voltage	V(BR)DSS	V_{GS}=0V, I_D=250μA	100	107	-	V
Zero Gate Voltage Drain Current	IDSS	V_{DS}=100V, V_{GS}=0V,	-	-	1.0	μA
Gate to Body Leakage Current	IGSS	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	V_{DS}=V_{GS}, I_D=250μA	1.0	1.8	2.5	V
Static Drain-Source on-Resistance	RDS(on)	V_{GS}=10V, I_D=5A	-	80	100	mΩ
		V_{GS}=4.5V, I_D=3A	-	90	110	mΩ
Input Capacitance	Ciss	V_{DS}=25V, V_{GS}=0V, f=1.0MHz	-	765	-	pF
Output Capacitance	Coss		-	38	-	pF
Reverse Transfer Capacitance	Crss		-	33	-	pF
Total Gate Charge	Q_g	V_{DS}=30V, I_D=5A, V_{GS}=10V	-	12	-	nC
Gate-Source Charge	Qgs		-	2.2	-	nC
Gate-Drain(“Miller”) Charge	Qgd		-	2.5	-	nC
Turn-on Delay Time	td(on)	V_{DS}=30V, I_D=10A, R_G=1.8Ω, V_{GS}=10V	-	7	-	ns
Turn-on Rise Time	tr		-	5	-	ns
Turn-off Delay Time	td(off)		-	16	-	ns
Turn-off Fall Time	t_f		-	6	-	ns
Maximum Continuous Drain to Source Diode Forward Current	IS		-	-	10	A
Maximum Pulsed Drain to Source Diode Forward Current	ISM		-	-	40	A
Drain to Source Diode Forward Voltage	VSD	V_{GS}=0V, I_S=10A	-	-	1.2	V
Body Diode Reverse Recovery Time	trr	I_F=10A, dI/dt=100A/μs	-	21	-	ns
Body Diode Reverse Recovery Charge	Qrr		-	21	-	nC

Note :

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

2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3、The power dissipation is limited by 150℃ junction temperature

4、The data is theoretically the same as I D and I DM , in real applications , should be limited by total power dissipation.

Typical Characteristics

Figure1: Output Characteristics

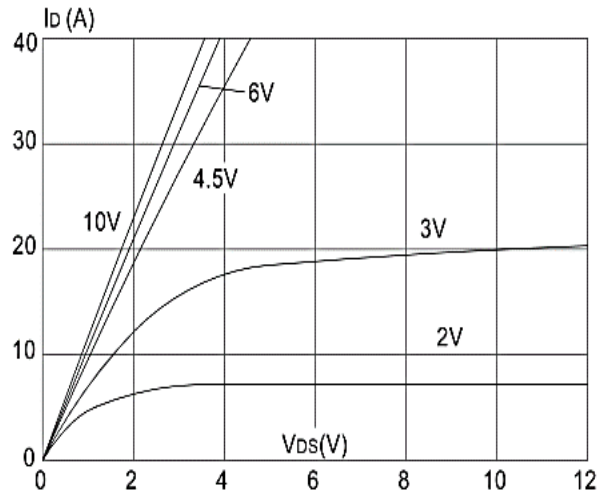


Figure 2: Typical Transfer Characteristics

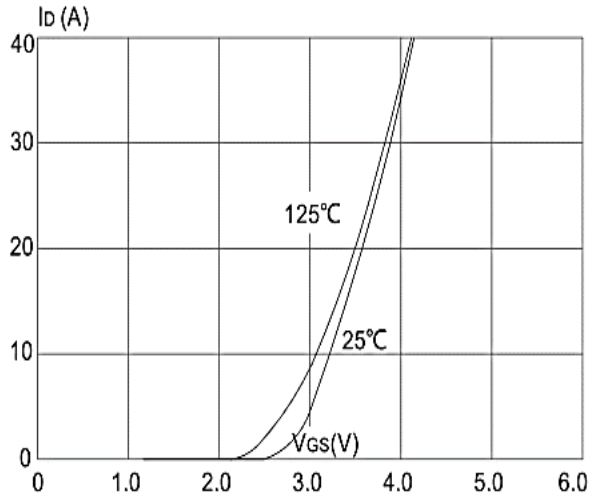


Figure 3: On-resistance vs. Drain Current

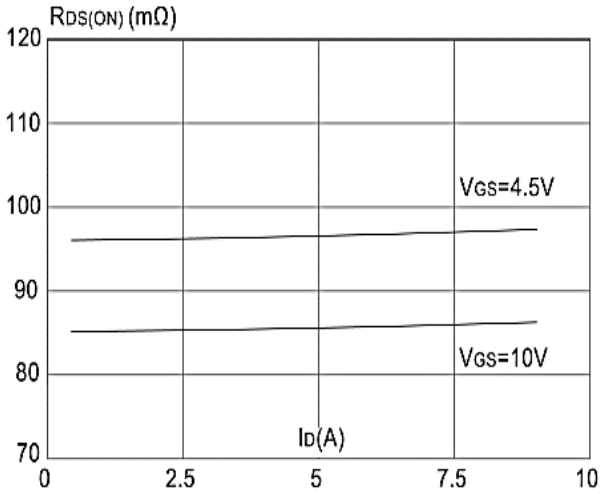


Figure 4: Body Diode Characteristics

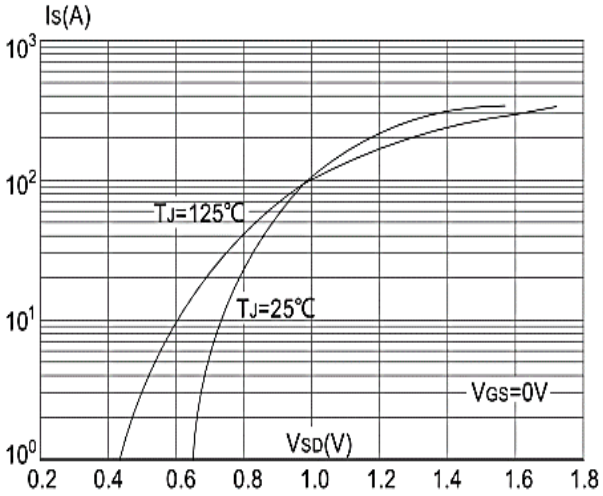


Figure 5: Gate Charge Characteristics

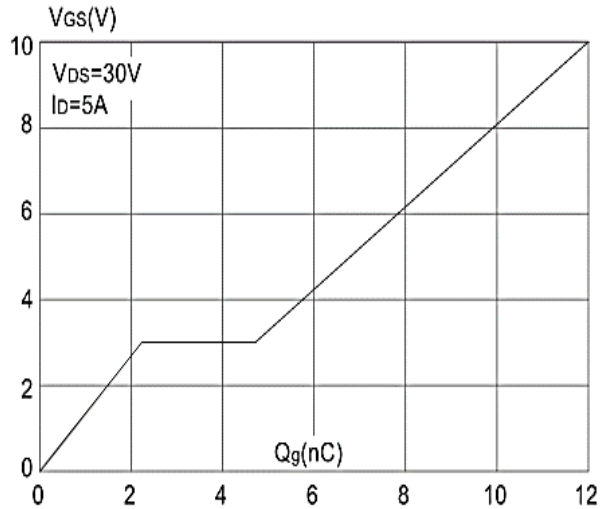


Figure 6: Capacitance Characteristics

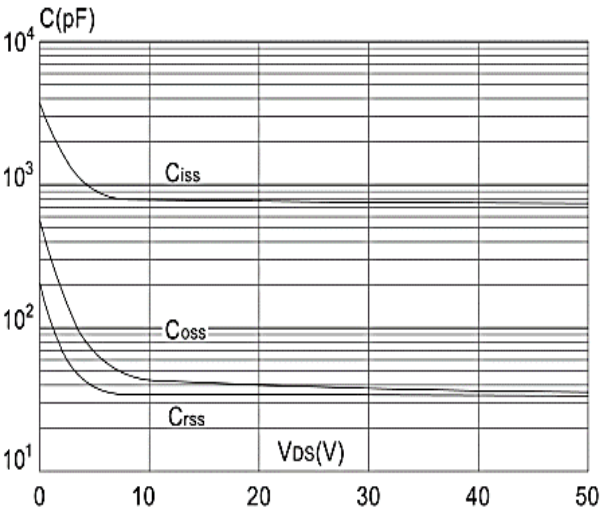


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

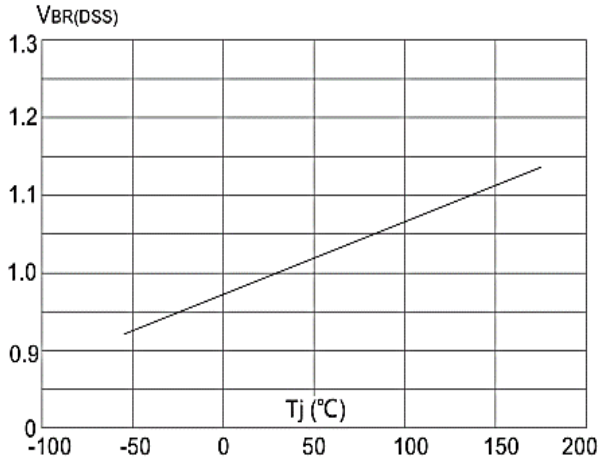


Figure 8: Normalized on Resistance vs. Junction Temperature

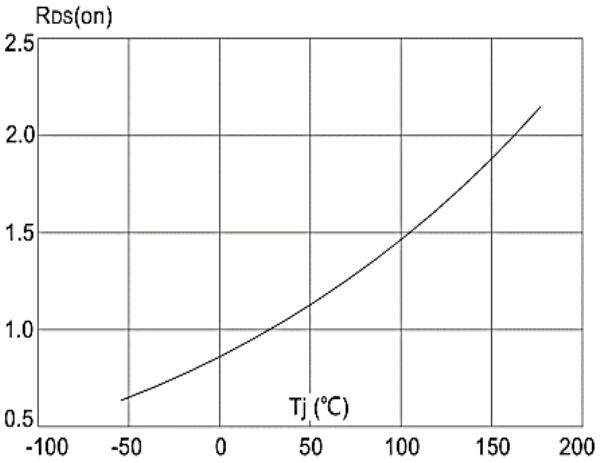


Figure 9: Maximum Safe Operating Area

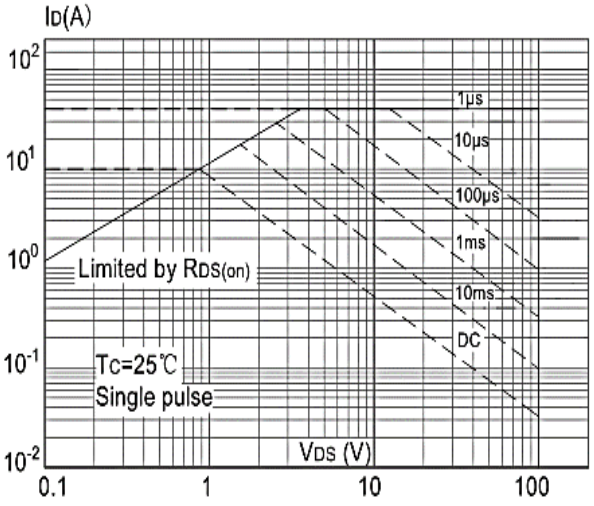


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

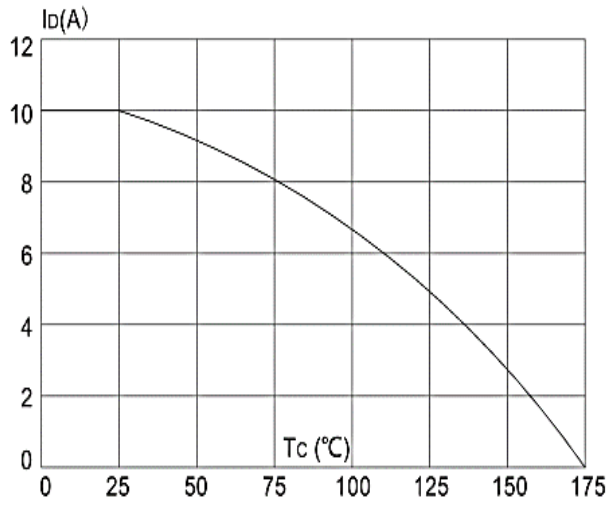
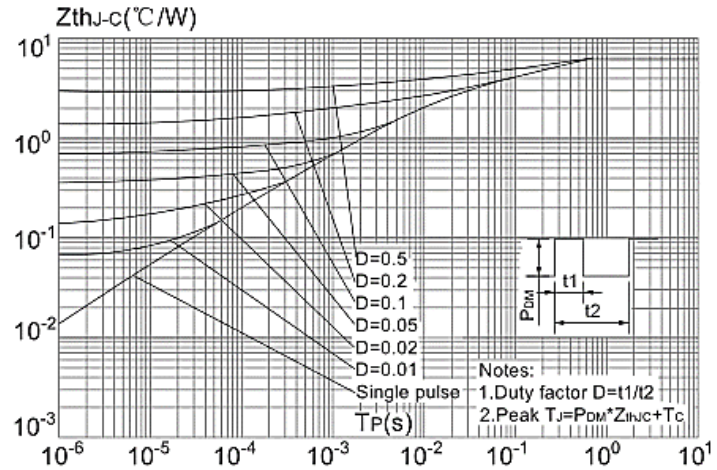
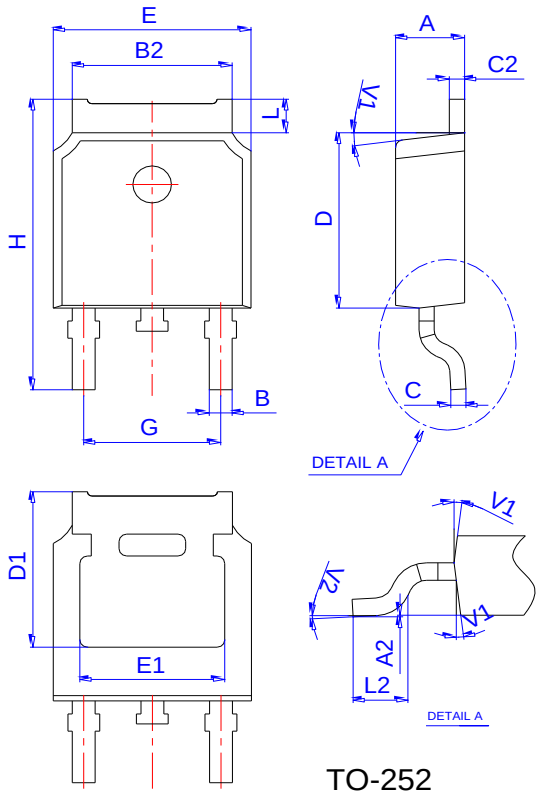


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



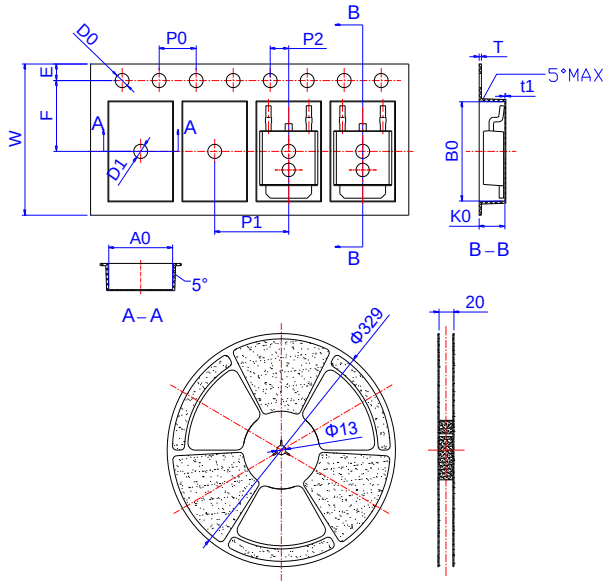
Package Mechanical Data: TO-252-3L



TO-252

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Reel Specification-TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	15.90	16.00	16.10	0.626	0.630	0.634
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
D0	1.40	1.50	1.60	0.055	0.059	0.063
D1	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	6.85	6.90	7.00	0.270	0.271	0.276
B0	10.45	10.50	10.60	0.411	0.413	0.417
K0	2.68	2.78	2.88	0.105	0.109	0.113
T	0.24		0.27	0.009		0.011
t1	0.10			0.004		
10P0	39.80	40.00	40.20	1.567	1.575	1.583

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