

General Description

The MY100N06D is the high cell density trench N-CH MOSFETs, which provide excellent $R_{DS(on)}$ and gate charge for most of the synchronous buck converter applications.

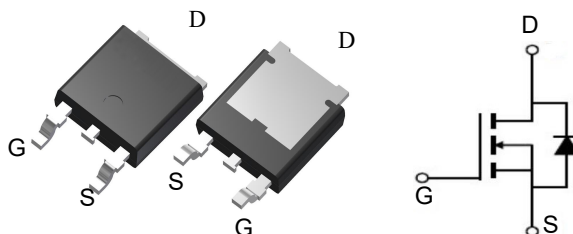


Features

V_{DSS}	60	V
I_D	100	A
$R_{DS(on)}$ (at $V_{GS}=10V$)	<6	m Ω
$R_{DS(on)}$ (at $V_{GS}=4.5V$)	<10	m Ω

Application

- Super Low Gate Charge
- 100% EAS Guaranteed
- Green Device Available
- Excellent CdV/dt effect decline
- Advanced high cell density Trench



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY100N06D	TO-252	MY100N06D	2500

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

Symbol	Parameter		Max.	Units
V _{DSS}	Drain- Source Voltage		60	V
V _{GSS}	Gate- Source Voltage		±20	V
I _D	Continuous Drain Current	T _C = 25 °C	100	A
		T _C = 100 °C	76	A
I _{DM}	Pulsed Drain Current ^{note1}		210	A
E _{AS}	Single Pulsed Avalanche Energy ^{note2}		100	m J
P _D	Power Dissipation	T _C = 25 °C	80	W
R _{θJC}	Thermal Resistance, Junction to Case		2.5	°C/ W
T _J , T _{STG}	Operating and Storage Temperature Range		-55 to + 175	°C

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR) DSS}	Drain- Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	± 100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.5	2.0	2.5	V
R _{DS(on)}	Static Drain- Source on-Resistance note3	V _{GS} =10V, I _D =40A	-	4.0	6.0	mΩ
		V _{GS} =4.5V, I _D =20A	-	7.3	10	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	1260	-	p F
C _{Oss}	Output Capacitance		-	560	-	p F
C _{rss}	Reverse Transfer Capacitance		-	37	-	p F
Q _g	Total Gate Charge	V _{DS} =30V, I _D =20A, V _{GS} =10V	-	22	-	n C
Q _{gs}	Gate- Source Charge		-	4.5	-	n C
Q _{gd}	Gate-Drain(“Miller”) Charge		-	3.5	-	n C
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =30V, I _D =20A, R _G =1.6Ω , V _{GS} =10V	-	4.5	-	ns
t _r	Turn-on Rise Time		-	2.7	-	ns
t _{d(off)}	Turn-off Delay Time		-	13.8	-	ns
t _f	Turn-off Fall Time		-	2.7	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _s	Maximum Continuous Drain to Source Diode Forward Current		-	-	45	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	180	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _s =30A	-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time	T _J = 25 C, I _F =20A, dI/dt=100A/μs	-	18	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	12	-	n C

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: $T_J=25\text{ }^{\circ}\text{C}$, $V_{DD}=30V$, $V_G=10V$, $R_G=25\Omega$, $L=0.5mH$, $I_{AS}=12A$
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

Typical Characteristics

Figure1: Output Characteristics

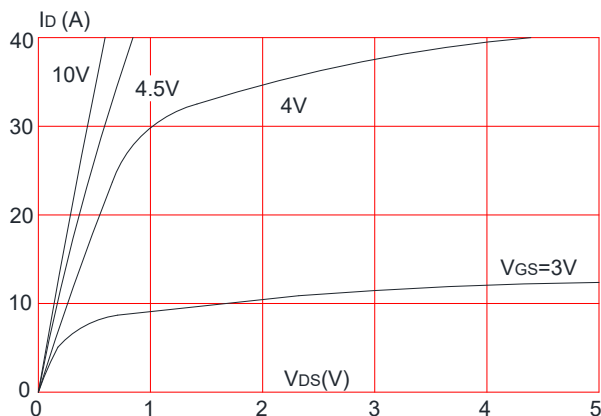


Figure 2: Typical Transfer Characteristics

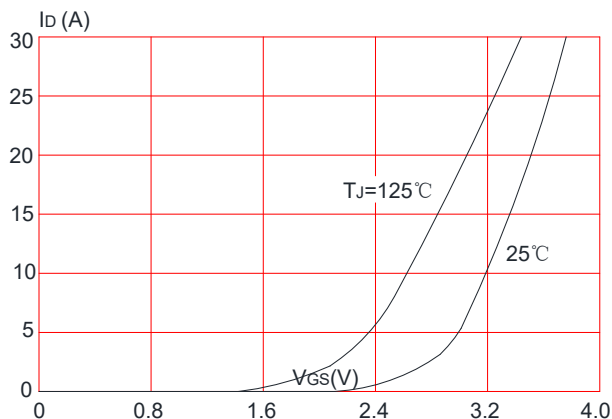


Figure 3: On-resistance vs. Drain Current

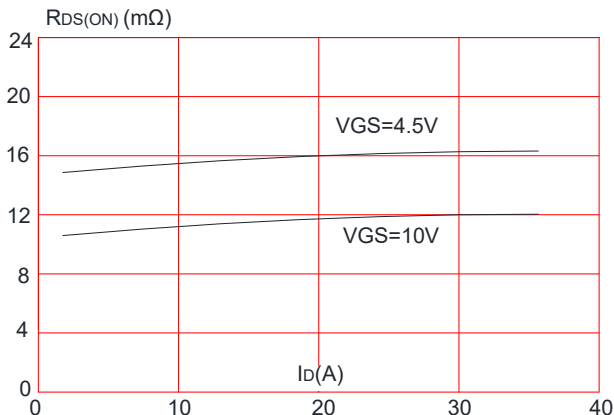


Figure 4: Body Diode Characteristics

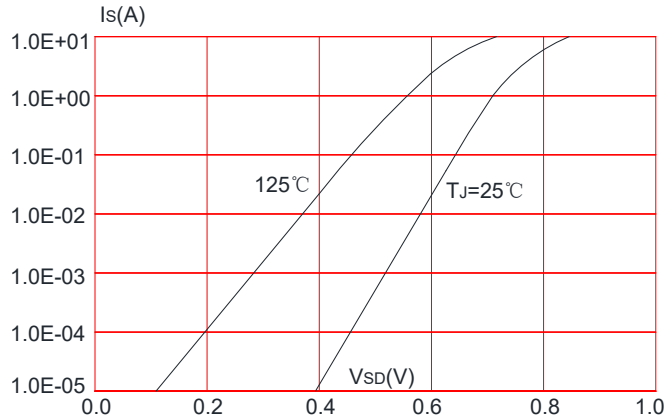


Figure 5: Gate Charge Characteristics

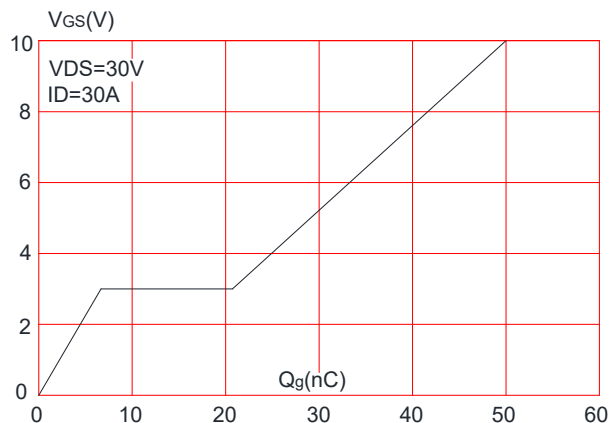


Figure 6: Capacitance Characteristics

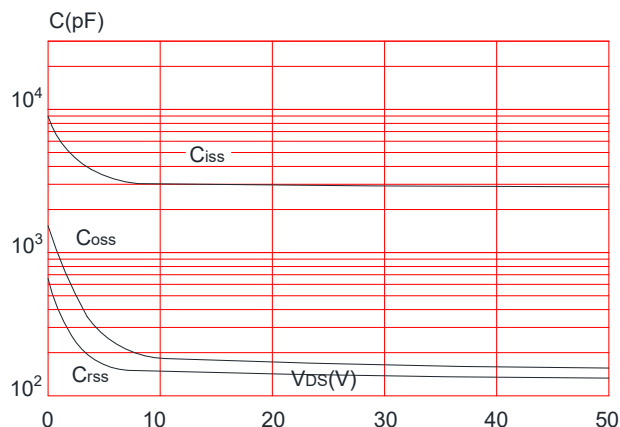


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

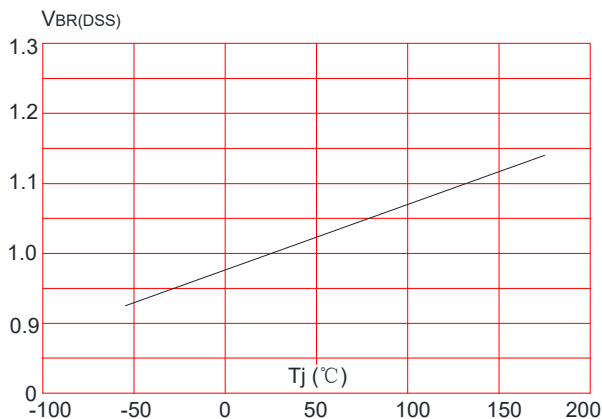


Figure 8: Normalized on Resistance vs. Junction Temperature

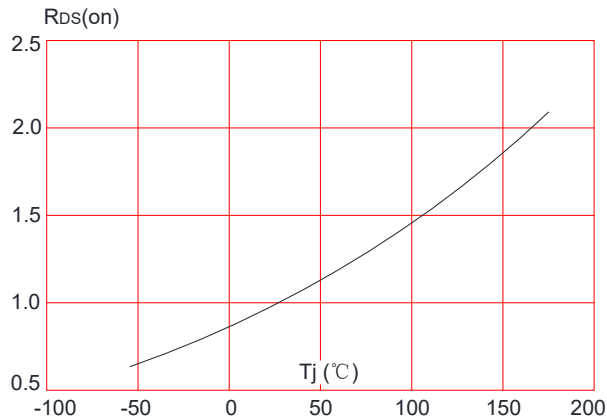


Figure 9: Maximum Safe Operating Area

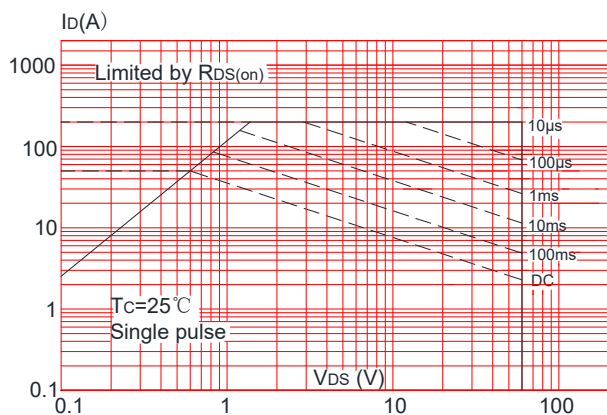


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

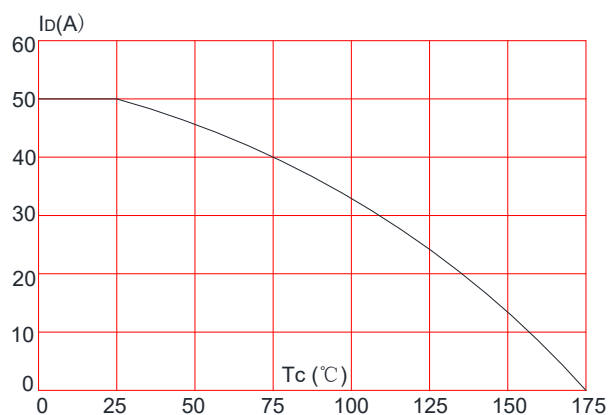
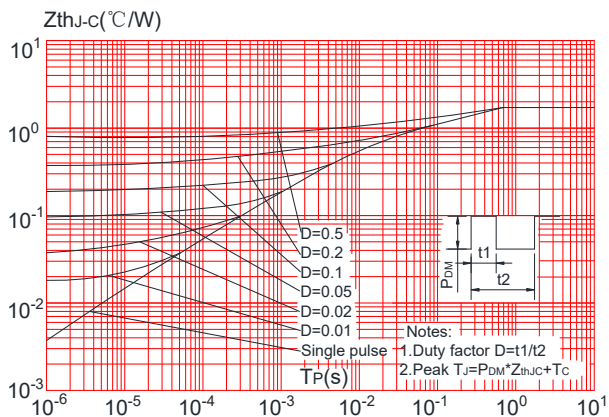
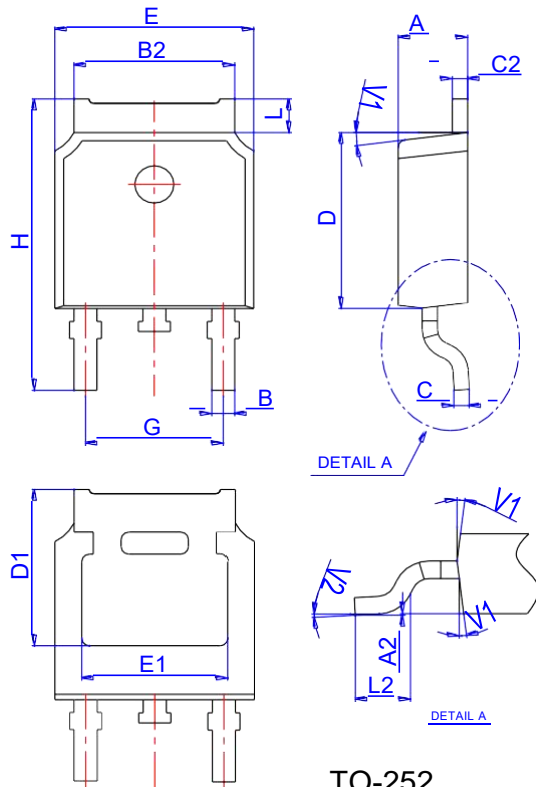


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



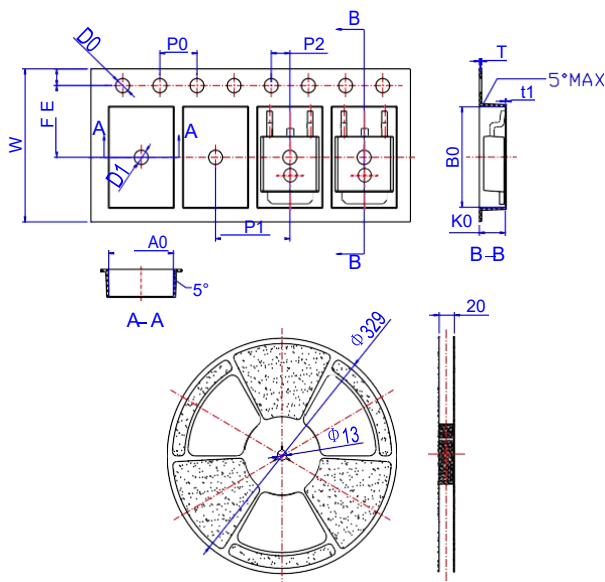
Package Mechanical Data TO-252



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