

General Description

The MY1N65D can be used in various power switching circuit for system miniaturization and higher efficiency.

The package form is TO-252-2L, which accords with the RoHS standard.

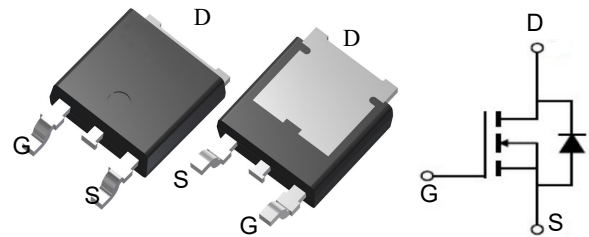


Features

V_{DSS}	650	V
I_D	1	A
$P_D(T_C=25^{\circ}C)$	21	W
$R_{DS(ON)}(at V_{GS}=4.5V)$	<115	m Ω

Application

- Power switch circuit
- Adaptor and charger



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY1N65D	TO-252-2L	MY1N65D	2500

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	650	V
V_{GS}	Gate-Source Voltage	± 30	V
I_D	Continuous Drain Current-	1	A
	Continuous Drain Current- $T_c=100^{\circ}C$	0.6	
E_{AS}	Single Pulse Avalanche Energy ²	50	mJ
P_D	Power Dissipation	21	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55~+150	$^{\circ}C$

Thermal Characteristics

Symbol	Parameter	Ratings	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	5.95	$^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient ⁴	62.5	

Electrical Characteristics ($T_c=25\text{ }^{\circ}\text{C}$, unless otherwise noted)

Symbo l	Parameter	Conditions	Min	Typ	Max	Unit s
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	650	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =650V	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±30V, V _{DS} =0V	---	---	±100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	2	---	4	V
R _{DS(ON)}	Drain-Source On Resistance ³	V _{GS} =10V, I _D =0.5A	---	---	115	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0, f=1MHz	---	120	150	pF
C _{oss}	Output Capacitance		---	20	25	
C _{rss}	Reverse Transfer Capacitance		---	3	4	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time ³	V _{DD} =300V, I _D =1A R _G =25Ω	---	5	20	ns
t _r	Rise Time ^{2,3}		---	25	60	ns
t _{d(off)}	Turn-Off Delay Time		---	7	25	ns
t _f	Fall Time ^{2,3}		---	25	60	ns
Q _g	Total Gate Charge ³	V _{DS} =480V, V _{GS} =10V, I _D =1A	---	5	6	nC
Q _{gs}	Gate-Source Charge		---	1	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	2.6	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode Forward Voltage ³	V _{GS} =0V, I _S =2A	---	---	1.4	V
t _{rr}	Reverse Recovery Time ³	I _S =2A, diF/dt=100A/M	---	160	---	ns
Q _{rr}	Reverse Recovery Charge		---	0.3	---	nC

*Notes 1, L=55mH, IAS=1.0A, VDD=50V, RG=25 Ω , Starting TJ =25 $^{\circ}\text{C}$

2, Repetitive Rating : Pulse width limited by maximum junction temperature

3, Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

4, Essentially Independent of Operating Temperature

Typical Characteristics

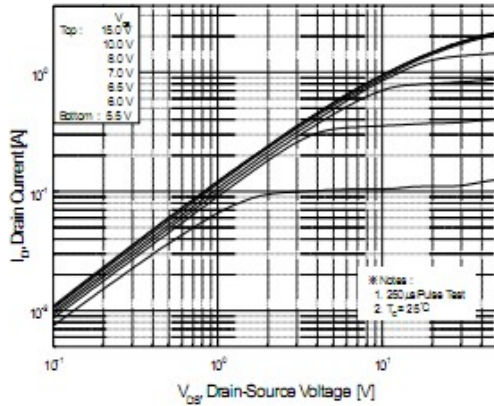


Figure 1. On-Region Characteristics

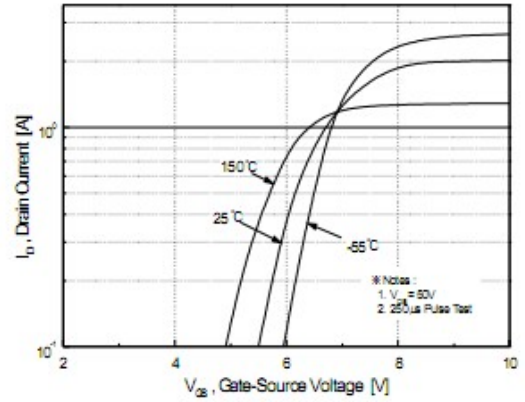


Figure 2. Transfer Characteristics

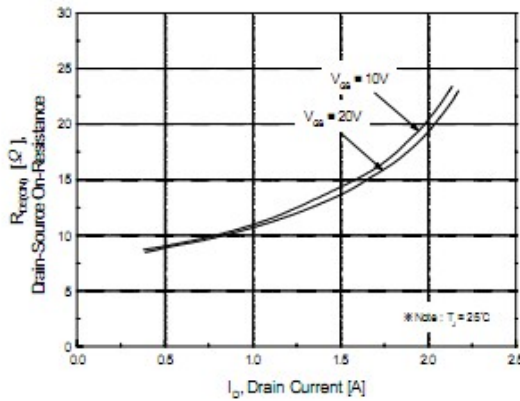


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

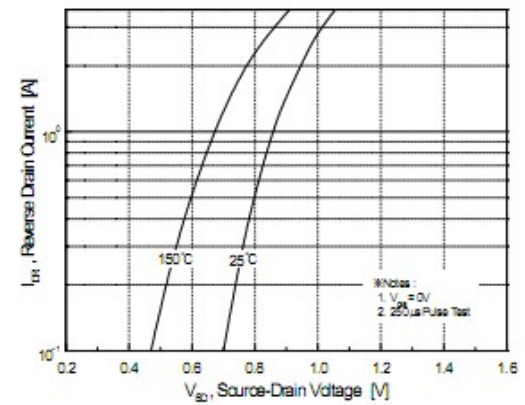


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

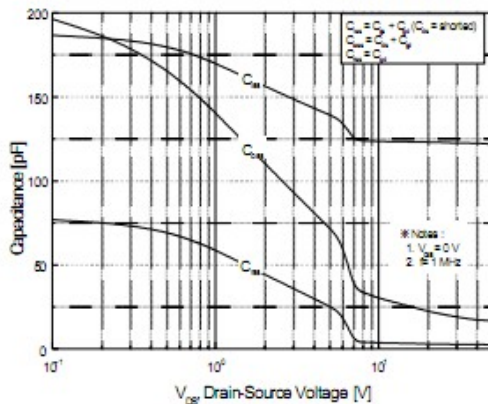


Figure 5. Capacitance Characteristics

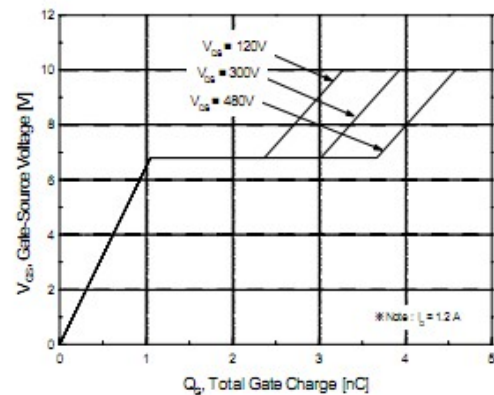


Figure 6. Gate Charge Characteristics

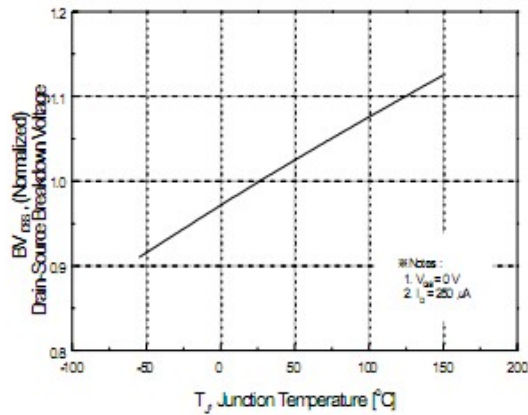


Figure 7. Breakdown Voltage Variation vs. Temperature

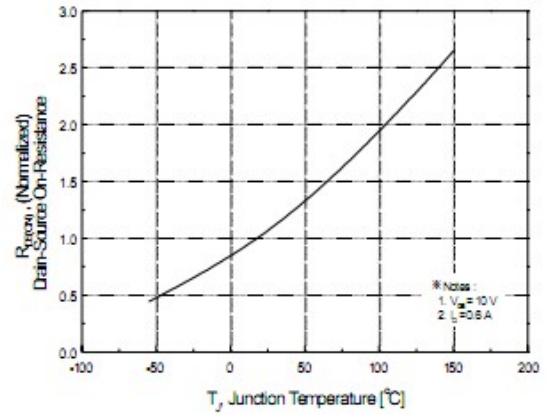


Figure 8. On-Resistance Variation vs. Temperature

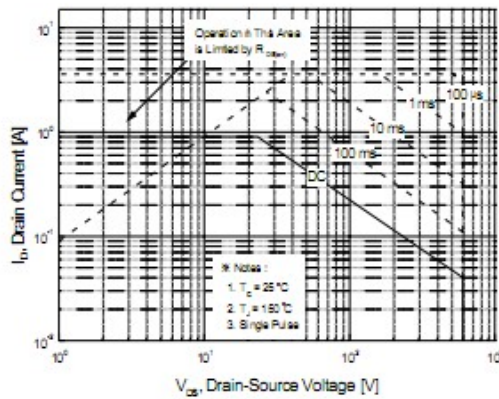


Figure 9. Maximum Safe Operating Area

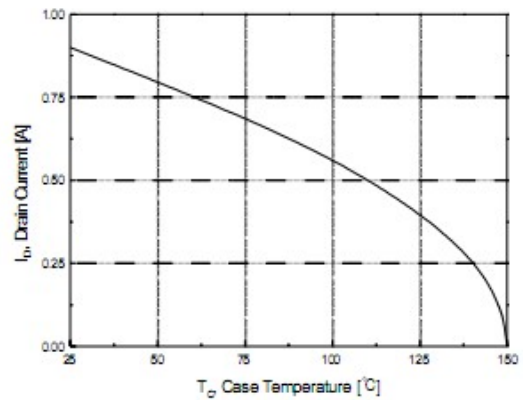


Figure 10. Maximum Drain Current vs. Case Temperature

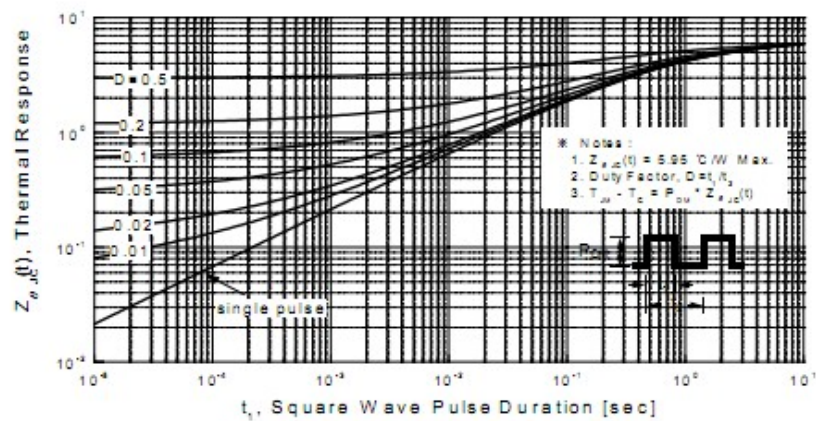
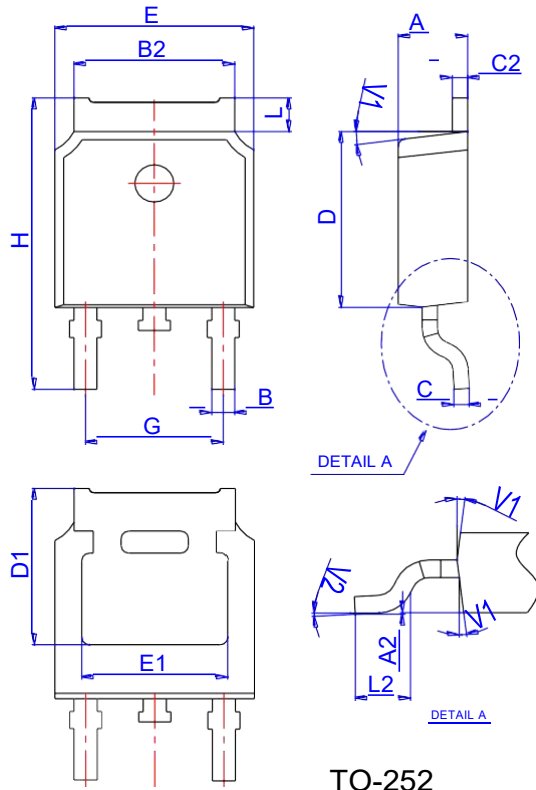


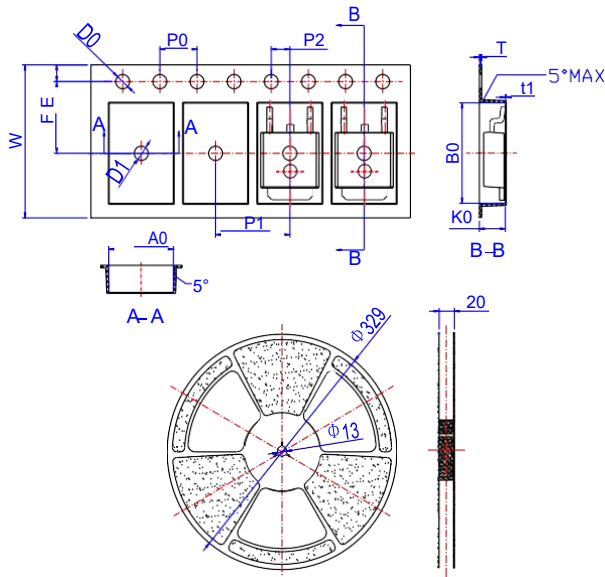
Figure 11. Transient Thermal Response Curve

Package Mechanical Data-TO-252-JQ Single



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