

## 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.

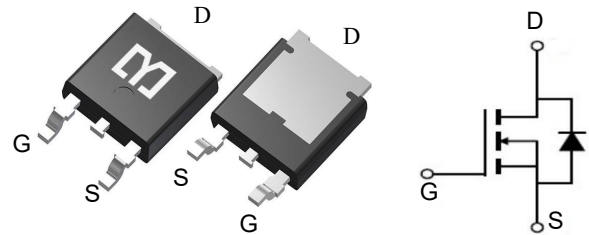


## Features

$V_{DSS}$	650	V
$I_D$	1	A
$P_D(T_C=25^\circ\text{C})$	21	W
$R_{DS(ON)}(at\ V_{GS}=4.5V)$	<11.5	$\Omega$

## 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 ( $T_J=25^\circ\text{C}$ unless otherwise noted)

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

## Thermal Characteristics

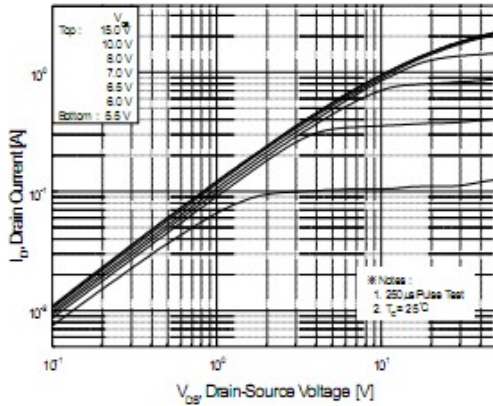
Symbol	Parameter	Ratings	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	5.95	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient <sup>4</sup>	62.5	

**Electrical Characteristics (T<sub>c</sub>=25 °C, unless otherwise noted)**

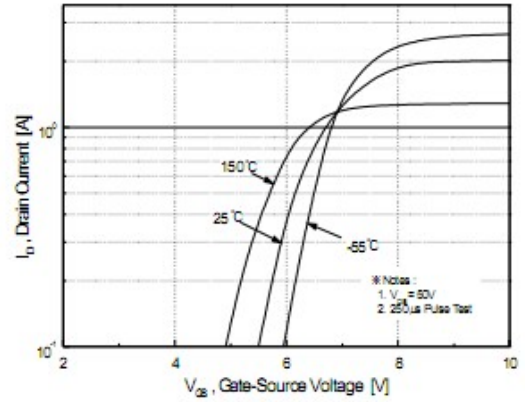
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	650	---	---	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>GS</sub> =0V, V <sub>DS</sub> =650V	---	---	1	μA
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±30V, V <sub>DS</sub> =0V	---	---	±100	nA
<b>On Characteristics</b>						
V <sub>GS(th)</sub>	GATE-Source Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250μA	2	---	4	V
R <sub>DS(ON)</sub>	Drain-Source On Resistance <sup>3</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> =0.5A	---	---	11.5	Ω
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =25V, V <sub>GS</sub> =0, f=1MHz	---	120	150	pF
C <sub>oss</sub>	Output Capacitance		---	20	25	
C <sub>rss</sub>	Reverse Transfer Capacitance		---	3	4	
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn-On Delay Time <sup>3</sup>	V <sub>DD</sub> =300V, I <sub>D</sub> =1A R <sub>G</sub> =25Ω	---	5	20	ns
t <sub>r</sub>	Rise Time <sup>2,3</sup>		---	25	60	ns
t <sub>d(off)</sub>	Turn-Off Delay Time		---	7	25	ns
t <sub>f</sub>	Fall Time <sup>2,3</sup>		---	25	60	ns
Q <sub>g</sub>	Total Gate Charge <sup>3</sup>	V <sub>DS</sub> =480V, V <sub>GS</sub> =10V, I <sub>D</sub> =1A	---	5	6	nC
Q <sub>gs</sub>	Gate-Source Charge		---	1	---	nC
Q <sub>gd</sub>	Gate-Drain "Miller" Charge		---	2.6	---	nC
<b>Drain-Source Diode Characteristics</b>						
V <sub>SD</sub>	Source-Drain Diode Forward Voltage <sup>3</sup>	V <sub>GS</sub> =0V, I <sub>S</sub> =2A	---	---	1.4	V
t <sub>rr</sub>	Reverse Recovery Time <sup>3</sup>	I <sub>S</sub> =2A, diF/dt=100A/M	---	160	---	ns
Q <sub>rr</sub>	Reverse Recovery Charge		---	0.3	---	nC

- \*Notes
- 1, L=55mH, I<sub>AS</sub>=1.0A, V<sub>DD</sub>=50V, R<sub>G</sub>=25Ω, Starting T<sub>J</sub> =25°C
  - 2, Repetitive Rating : Pulse width limited by maximum junction temperature
  - 3, Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%
  - 4, Essentially Independent of Operating Temperature

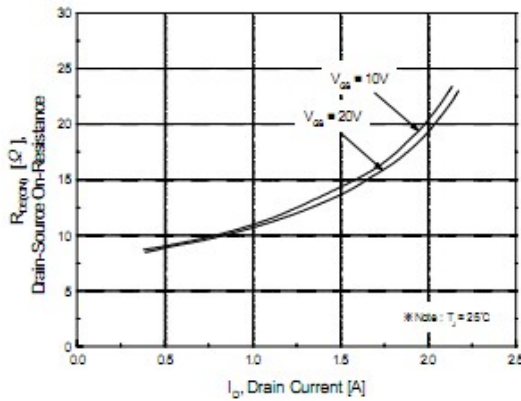
**Typical Characteristics**



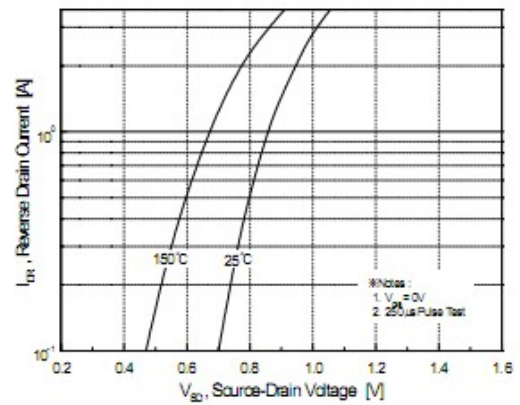
**Figure 1. On-Region Characteristics**



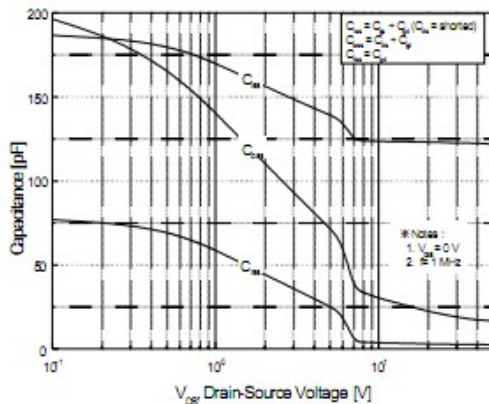
**Figure 2. Transfer Characteristics**



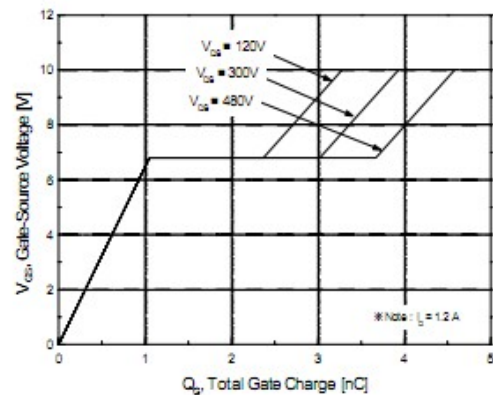
**Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage**



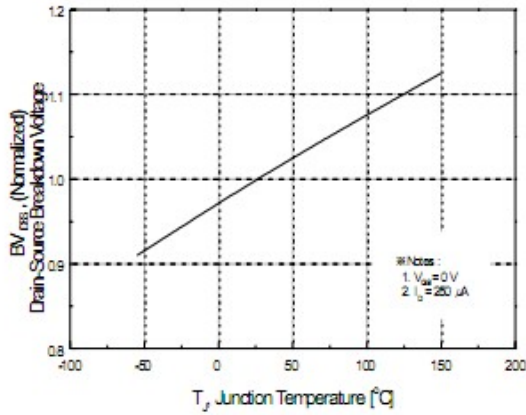
**Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature**



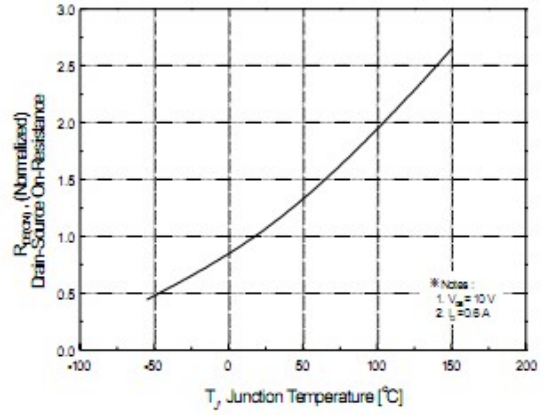
**Figure 5. Capacitance Characteristics**



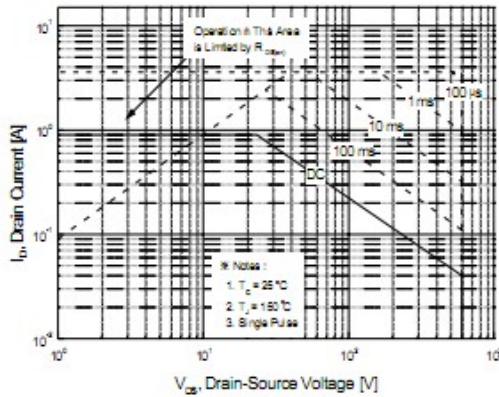
**Figure 6. Gate Charge Characteristics**



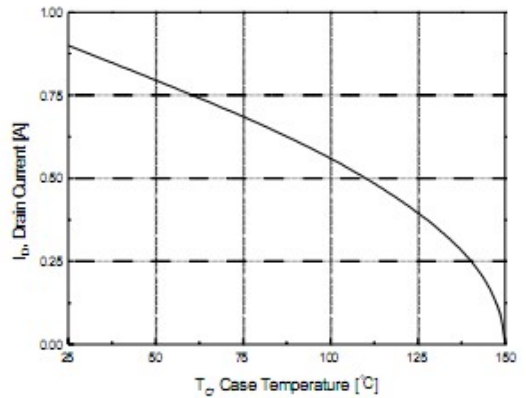
**Figure 7. Breakdown Voltage Variation vs. Temperature**



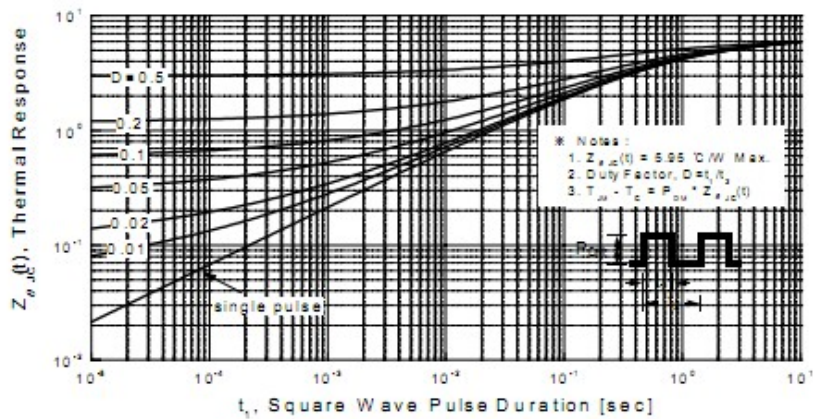
**Figure 8. On-Resistance Variation vs. Temperature**



**Figure 9. Maximum Safe Operating Area**



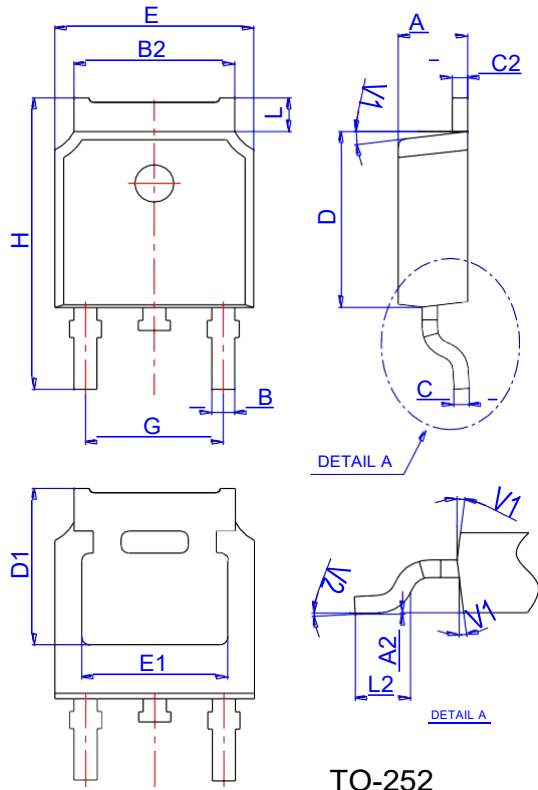
**Figure 10. Maximum Drain Current vs. Case Temperature**



**Figure 11. Transient Thermal Response Curve**

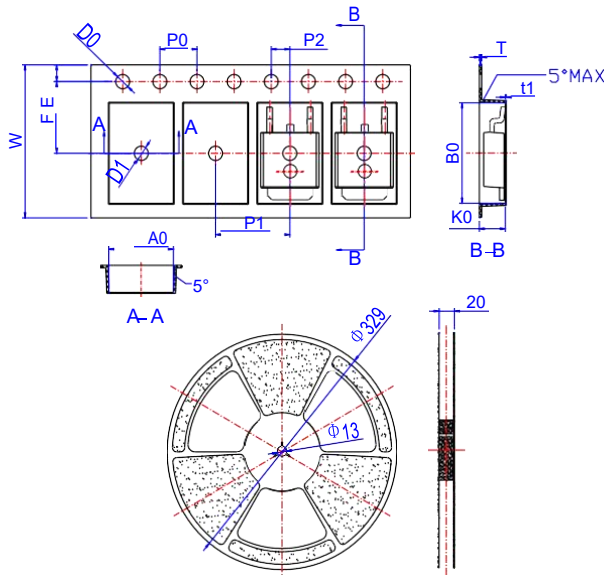


**Package Mechanical Data-TO-252-JQ Single**



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