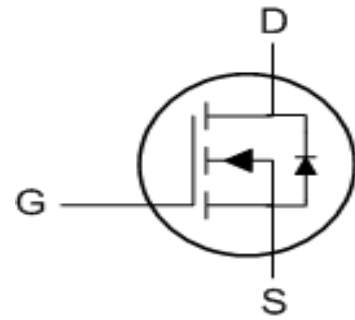




- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

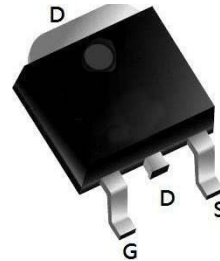


Description

The WLU10N06 is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The WLU10N06 meet the RoHS and Green Product requirement 100% EAS guaranteed with full function reliability approved.

TO252 Pin Configuration



Product Summary

BVDSS	RDSON	ID
60V	60 mΩ	10A

■ **Absolute Maximum Ratings** (T_A=25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V _{DS}	60	V
Gate-source Voltage		V _{GS}	±20	V
Drain Current	T _A =25°C	I _D	10	A
	T _A =100°C		8	
Pulsed Drain Current ^A		I _{DM}	18	A
Total Power Dissipation ^B	T _A =25°C	P _D	1.2	W
	T _A =100°C		0.45	
Junction and Storage Temperature Range		T _J , T _{STG}	-55~+150	°C

■ **Thermal resistance**

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^C	Steady-State	R _{θJA}	85	105	°C/W



■ Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
		V _{DS} =60V, V _{GS} =0V, T _J =150°C	-	-	100	
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	0.9	1.35	2	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =3A	-	60	82	mΩ
		V _{GS} =4.5V, I _D =3A	-	68	92	
Diode Forward Voltage	V _{SD}	I _S =3A, V _{GS} =0V	-	0.85	1.2	V
Gate resistance	R _G	f=1MHz, Open drain	-	2	-	Ω
Maximum Body-Diode Continuous Current	I _S		-	-	10	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz	-	500	-	pF
Output Capacitance	C _{oss}		-	28	-	
Reverse Transfer Capacitance	C _{rss}		-	22	-	
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =30V, I _D =3A	-	10	-	nC
Gate-Source Charge	Q _{gs}		-	1.7	-	
Gate-Drain Charge	Q _{gd}		-	2.1	-	
Reverse Recovery Charge	Q _{rr}	I _F =3A, di/dt=100A/us	-	7	-	nC
Reverse Recovery Time	t _{rr}		-	33	-	ns
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _{DD} =30V, R _L =20Ω R _{GEN} =3Ω	-	3.6	-	ns
Turn-on Rise Time	t _r		-	17.6	-	
Turn-off Delay Time	t _{D(off)}		-	13	-	
Turn-off fall Time	t _f		-	23	-	

A. Repetitive rating; pulse width limited by max. junction temperature.

B. P_d is based on max. junction temperature, using junction-case thermal resistance.

C. The value of R_{θJA} is measured with the device mounted on the minimum recommend pad size, in the still air environment with T_A=25°C. The maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.



■ Typical Electrical and Thermal Characteristics Diagrams

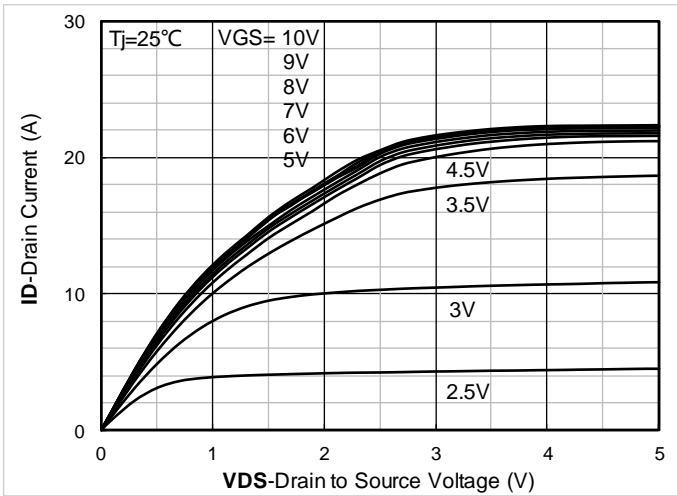


Figure 1. Output Characteristics

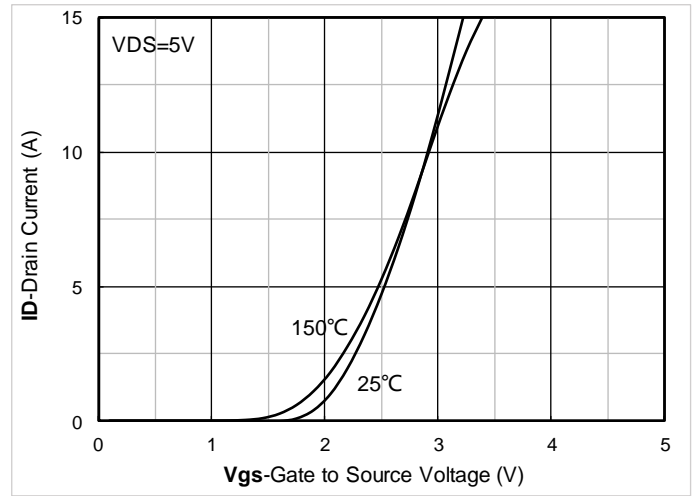


Figure 2. Transfer Characteristics

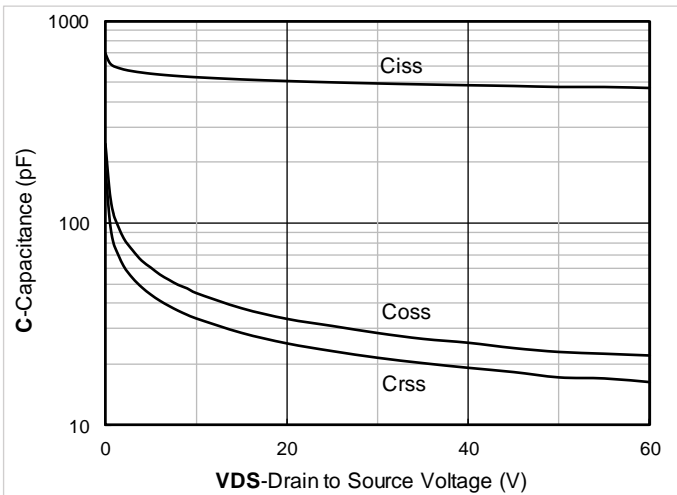


Figure 3. Capacitance Characteristics

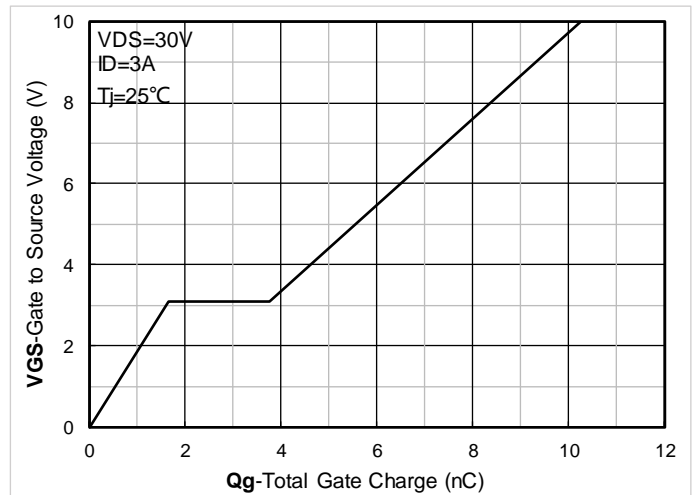


Figure 4. Gate Charge

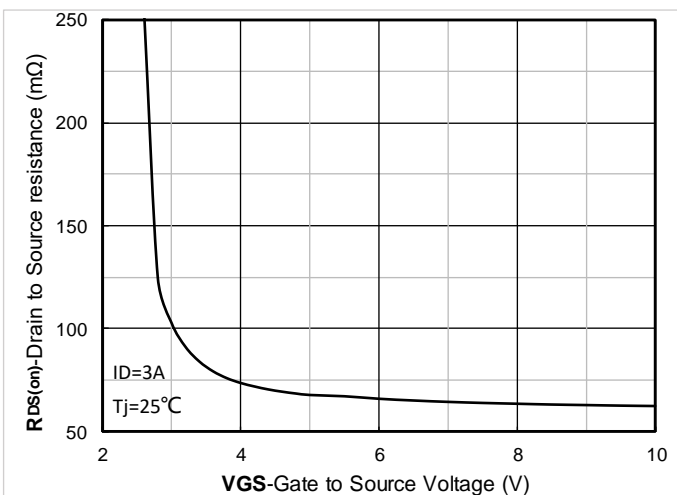


Figure 5. On-Resistance vs Gate to Source Voltage

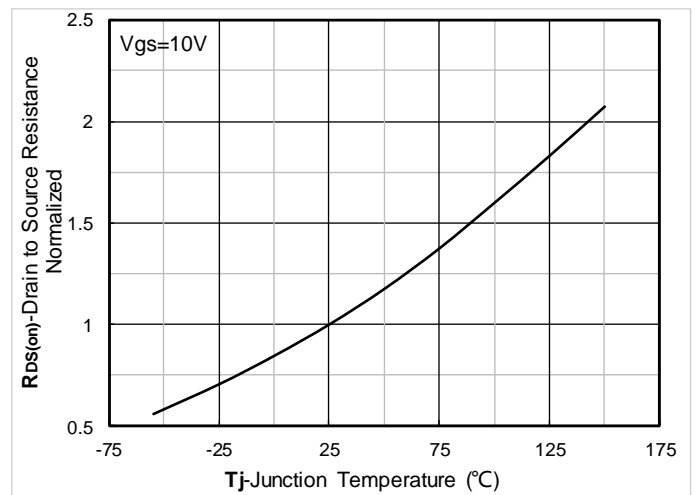


Figure 6. Normalized On-Resistance

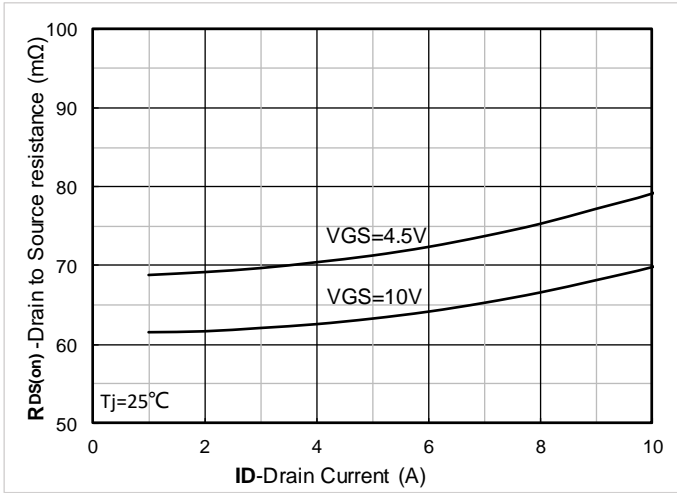


Figure 7. RDS(on) VS Drain Current

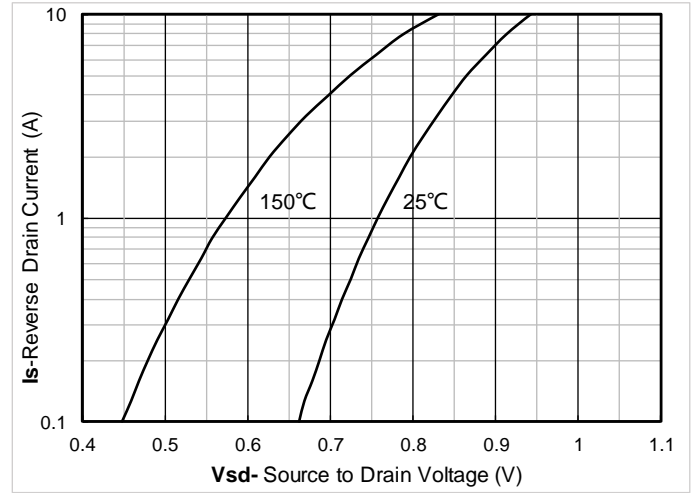


Figure 8. Forward characteristics of reverse diode

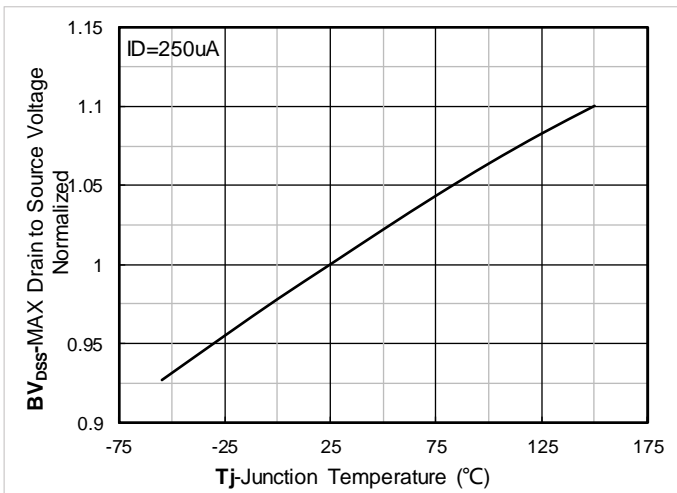


Figure 9. Normalized breakdown voltage

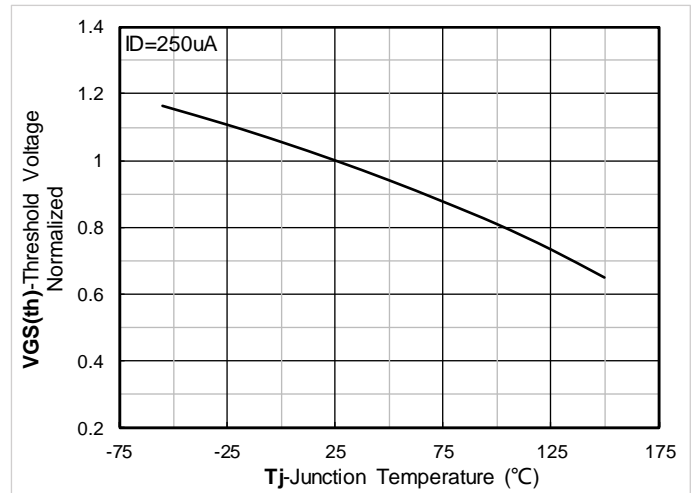


Figure 10. Normalized Threshold voltage

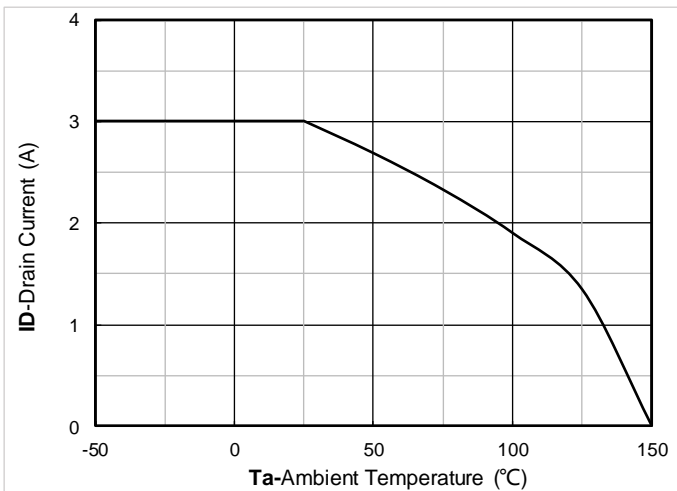


Figure 11. Current dissipation

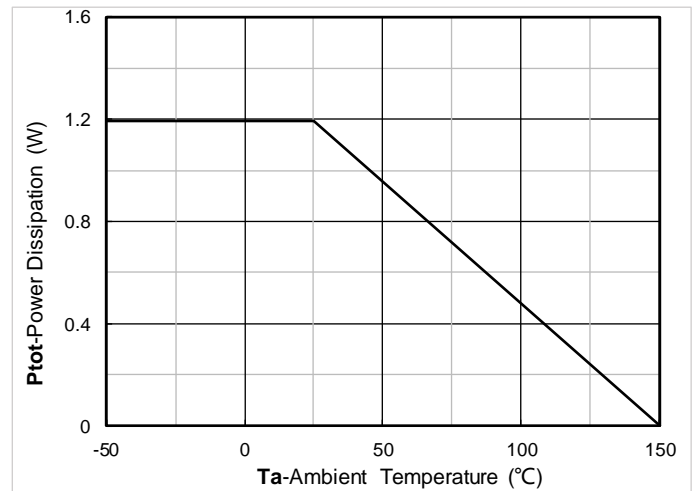


Figure 12. Power dissipation

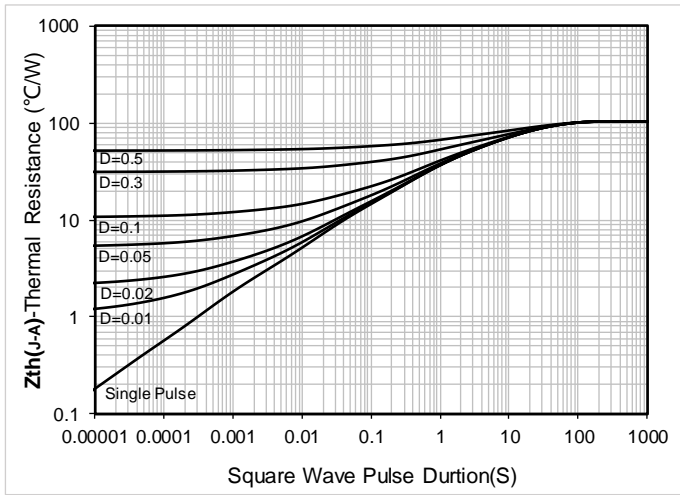


Figure 13. Maximum Transient Thermal Impedance

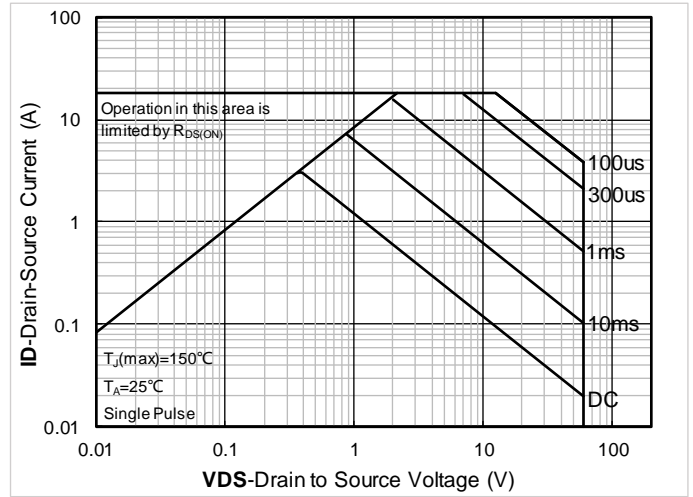


Figure 14. Safe Operation Area

■ Test Circuits & Waveforms

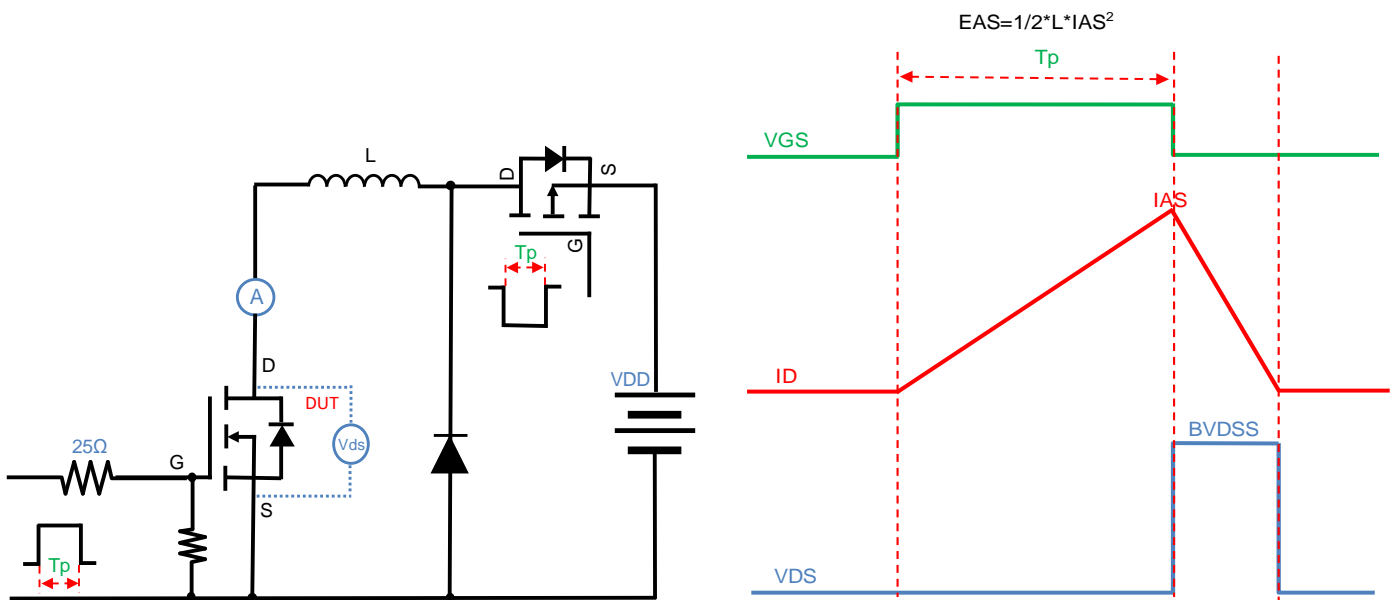


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

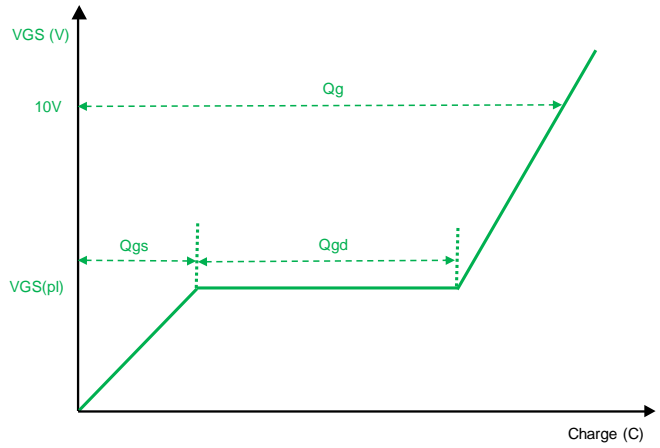
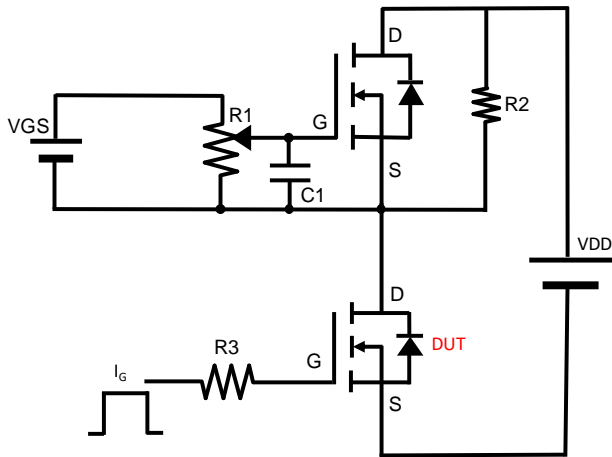


Figure B. Gate Charge Test Circuit & Waveform

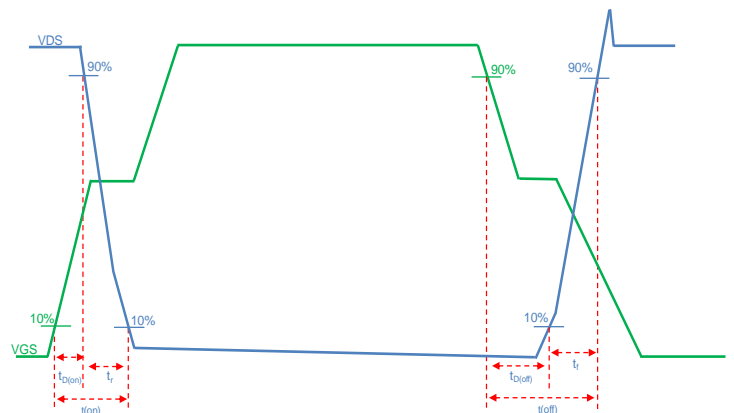
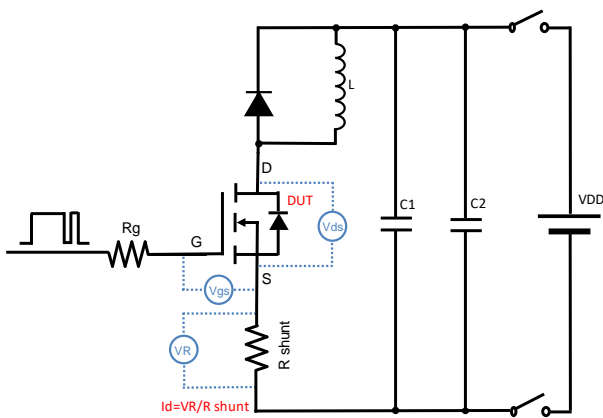


Figure C. Resistive Switching Test Circuit & Waveform

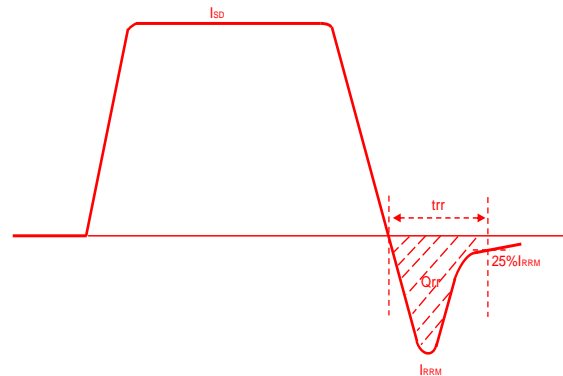
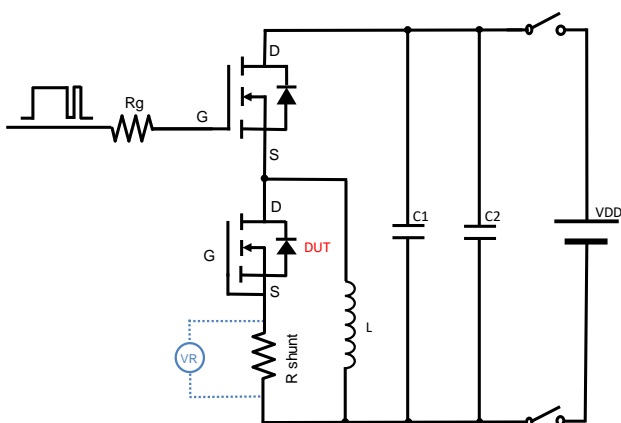
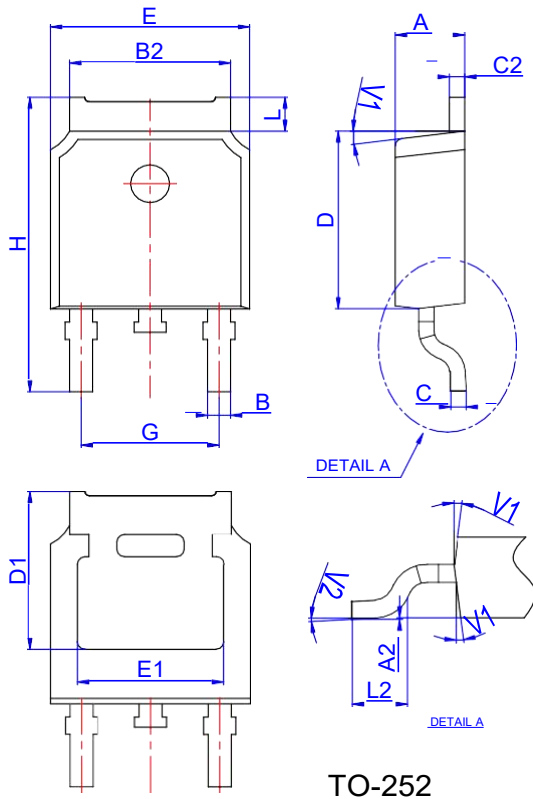


Figure D. Diode Recovery Test Circuit & Waveform

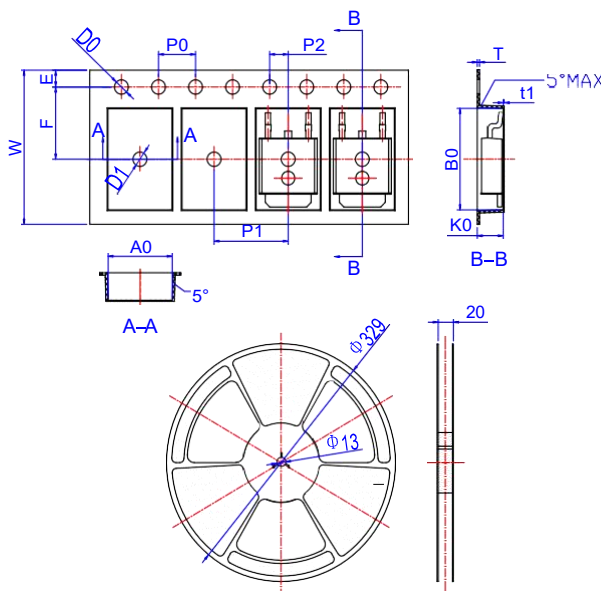


Package Mechanical Data-TO-252



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-252-4R



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



Disclaimer

Brunei has made reasonable commercial efforts to ensure that the information given in this datasheet is correct. However, it must clearly be understood that such information is for guidance only and does not constitute any representation or form part of any offer or contract.

For documents and material available from this datasheet, Brunei does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, product, technology or process disclosed hereunder.

Brunei reserves the rights to at its own discretion to make any changes or improvements to this datasheet. Unless said datasheet is incorporated into the formal contract, any customer should not rely on the information as any specification or product parameters duly committed by Brunei Customers are hereby advised to verify that the information contained herein is current and complete before the entering of any contract or acknowledgement of any purchase order. Accordingly, all products specified hereunder shall be sold subject to Brunei's terms and conditions supplied at the time of order acknowledgement. Except where agreed upon by contractual agreement, testing of all parameters of each product is not necessarily performed.

Brunei does not warrant or convey any license either expressed or implied under its patent rights, nor the rights of others. Reproduction of information contained herein shall be only permissible if such reproduction is without any modification or alteration. Reproduction of this information with any alteration is an unfair and deceptive business practice. Brunei is not responsible or liable for such altered documentation.

Resale of Brunei's products with statements different from or beyond the parameters stated by Brunei for that product or service voids all express or implied warranties for the associated Brunei's product or service and is unfair and deceptive business practice. Brunei is not responsible or liable for any such statements.

Brunei's products are not authorized for use as critical components in life support devices or systems without the express written approval of Brunei. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.