Features

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

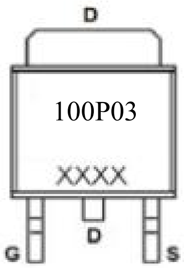
Bvdss	*Rdson*	*ID*
-30V	3.5mΩ	-100A

Application

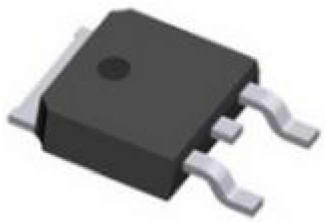
RoHS

- ➢ PWM applications
- ➢ Load Switch
- ➢ Power management

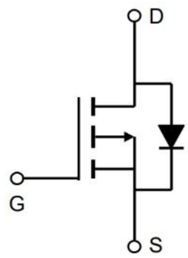
Package



Marking and pin assignment



TO-252 top view



Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
100P03	100P03	TO-252	2500

Absolute Maximum Ratings (T_A=25℃unless otherwise specified noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D@T_C=25℃	-100	A
	I_D@T_C=100℃	-67	A
Pulsed Drain Current[1]	I_{DM}	-360	A
Single Pulse Avalanche Energy[2]	E_{AS}	125	mJ
Avalanche Current	I_{AS}	-	A
Total Power Dissipation	P_D@T_C=25℃	60	W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

Thermal Resistance Ratings

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance from Junction-to-Ambient[3]	$R_{\theta JA}$	50	--	℃/W
Thermal Resistance from Junction-to-Case	$R_{\theta JC}$	1.58	--	℃/W

Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL100P03	TO-252	1	2	3	Tape Reel

Electrical Characteristics (T_J=25℃unless otherwise noted)

Parameter		Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250μA	-30	-	-	V
Gate-body Leakage current		I_{GSS}	V_{DS}=0V,V_{GS}=±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	T_J=25℃	I_{DSS}	V_{DS}=-30V,V_{GS}=0V	-	-	-1	μA
	T_J=100℃			-	-	-100	
Gate Threshold Voltage		$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-1.0	-1.6	-2.5	V
Drain-Source On-Resistance[4]		$R_{DS(ON)}$	V_{GS}= -10V, I_D= -30A	-	3.5	4.5	mΩ
			V_{GS}= -4.5V, I_D= -15A	-	4.8	6.2	
Forward Transconductance		g_{fs}	V_{DS} = -10V, I_D = -30A	-	90	-	S
Input Capacitance		C_{iss}	V_{DS}= -15V,V_{GS}=0V, f =1MHz	-	5070	-	pF
Output Capacitance		C_{oss}		-	695	-	
Reverse Transfer Capacitance		C_{rss}		-	580	-	
Gate resistance		R_g	f =1MHz	-	4	-	Ω
Total Gate Charge		Q_g	V_{DS}= -15V,I_D= -30A, V_{GS}= -10V	-	146	-	nC
Gate-Source Charge		Q_{gs}		-	21.5	-	
Gate-Drain Charge		Q_{gd}		-	39	-	
Turn-on Delay Time		$t_{d(on)}$	V_{DD}= -15V,I_D= -30A, R_G=3Ω，V_{GS}= -10V	-	23	-	nS
Rise Time		t_r		-	15	-	
Turn-Off Delay Time		$t_{d(off)}$		-	129	-	
Fall Time		t_f		-	28	-	
Diode Forward Voltage[4]		V_{SD}	V_{GS}=0V,I_S= -30A	-	-	-1.2	V
Continuous Source Current	T_C=25℃	I_S	-	-	-	-100	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150℃
2. The E_{AS} data shows Max. rating . The test condition is V_{DD}= -25V, V_{GS}= -10V, L= 0.1mH, I_{AS}= -50A
3. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.

Typical Characteristics

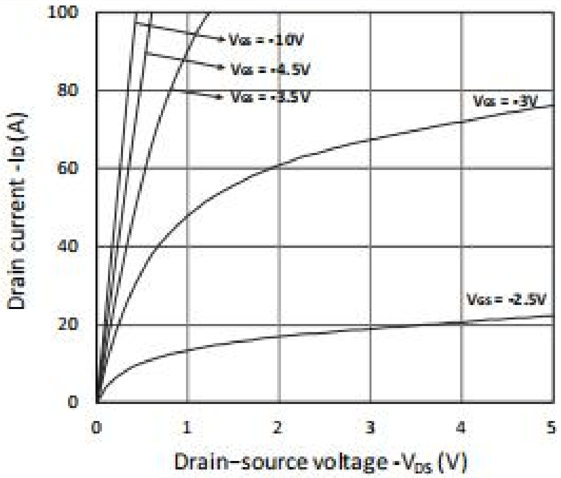


Figure 1. Output Characteristics

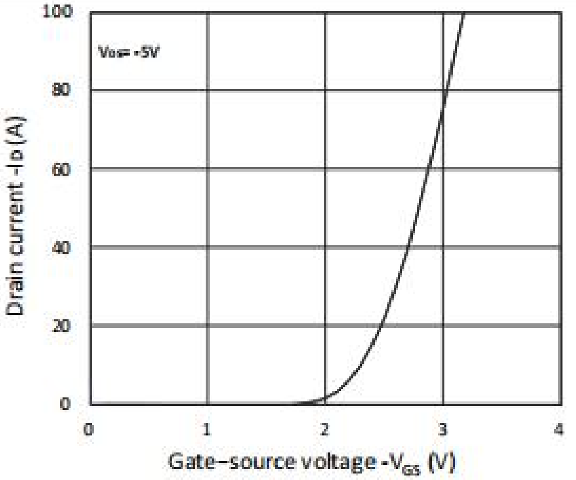


Figure 2. Transfer Characteristics

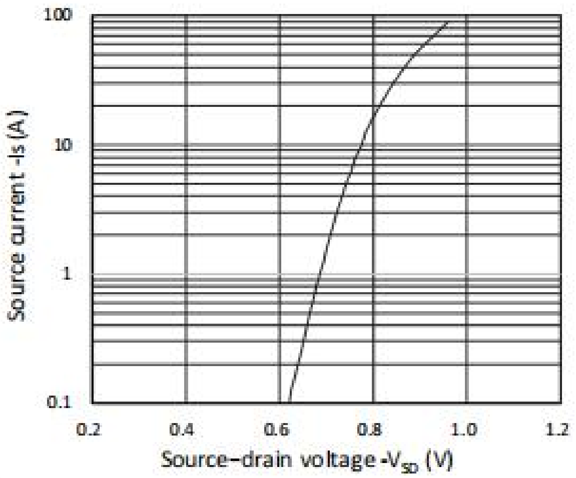


Figure 3. Forward Characteristics of Reverse

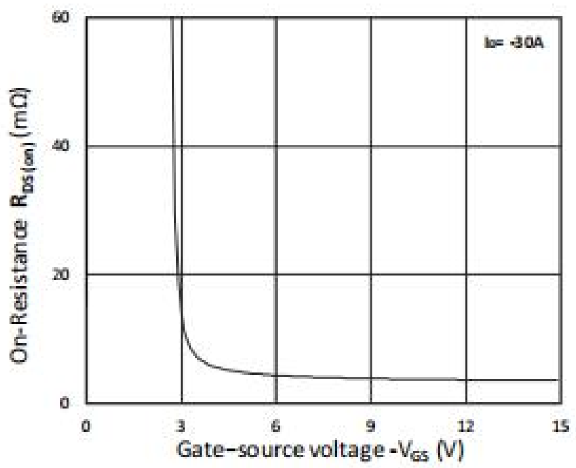


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

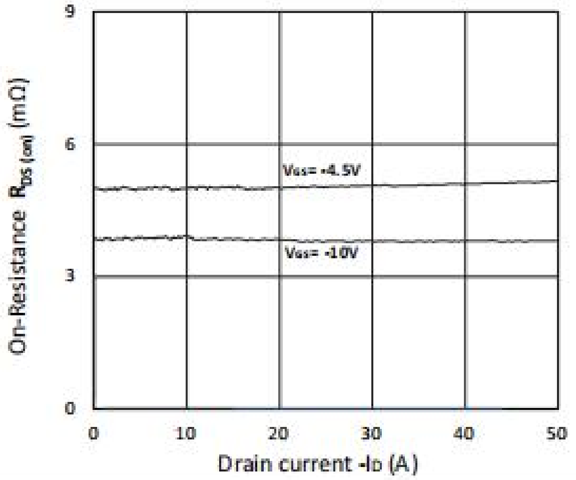


Figure 5. $R_{DS(ON)}$ vs. I_D

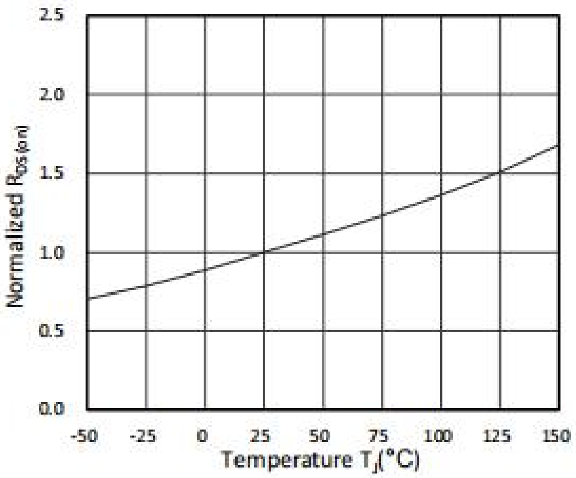


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

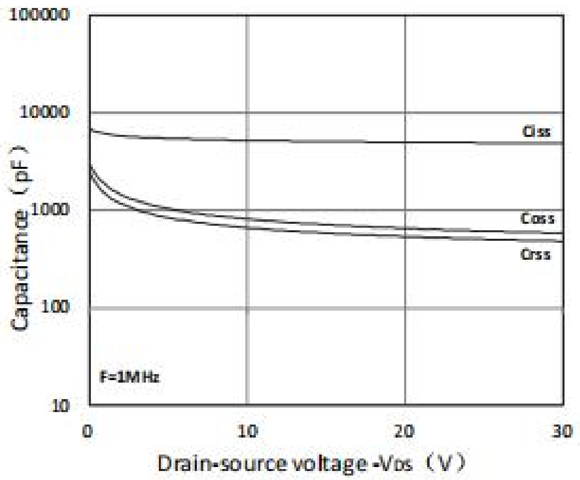


Figure 7. Capacitance Characteristics

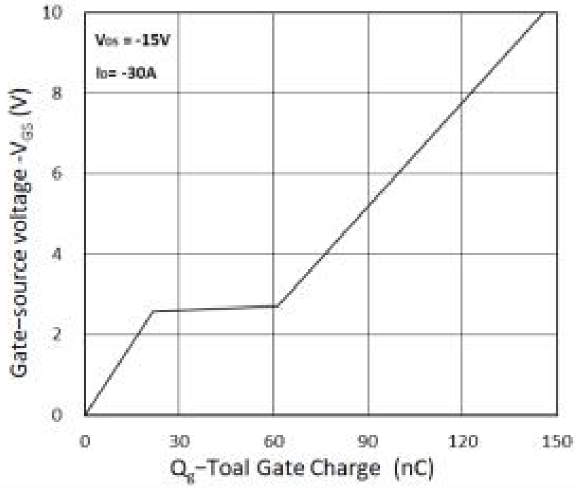


Figure 8. Gate Charge Characteristics

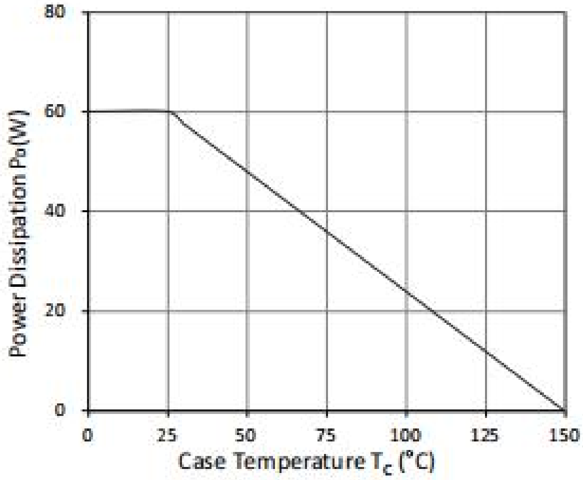


Figure 9. Power Dissipation

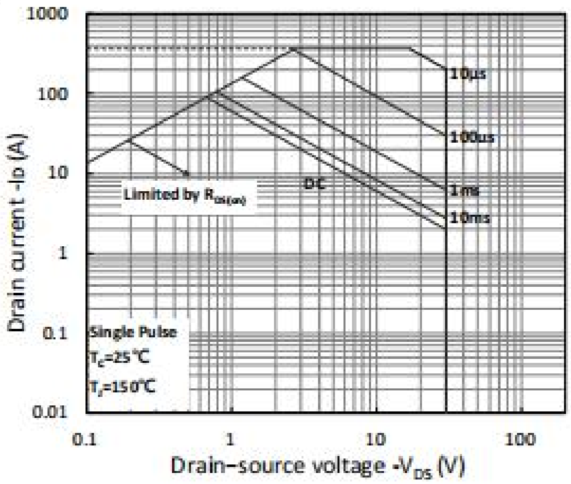


Figure10. Safe Operating Area

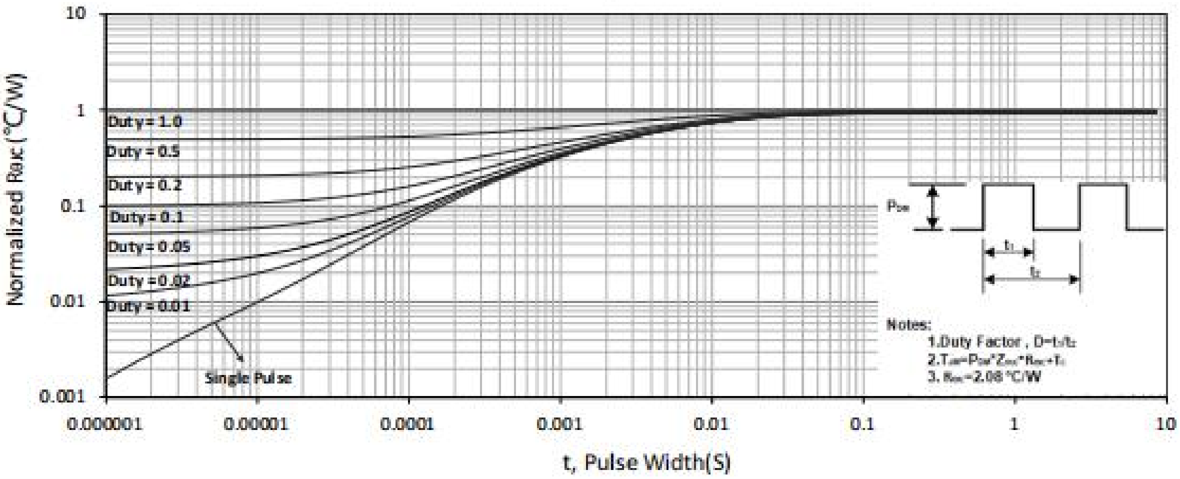
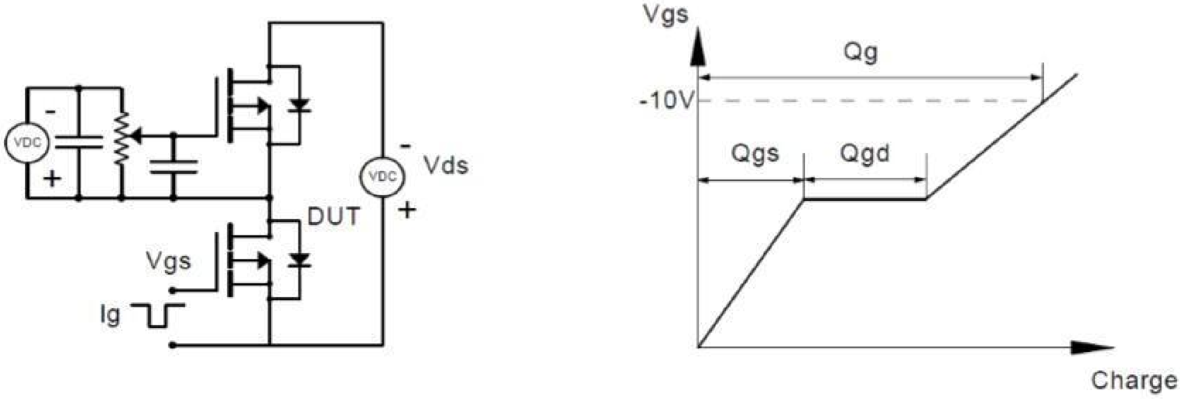


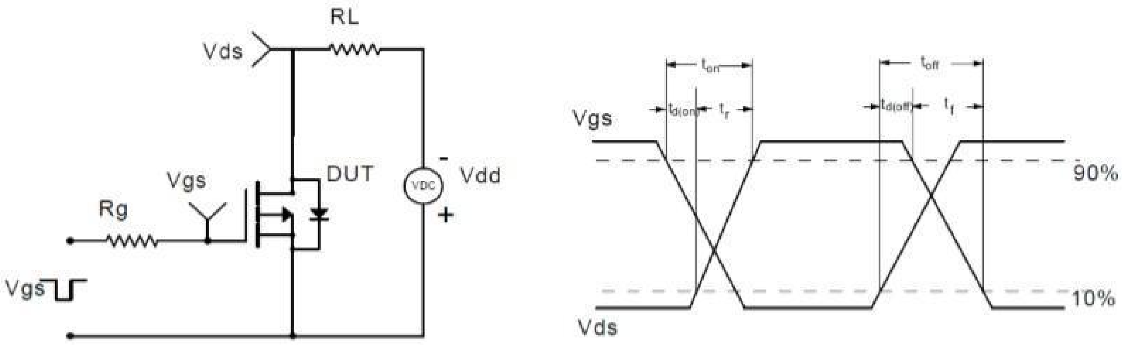
Figure 11. Normalized Maximum Transient Thermal Impedance

Test Circuit

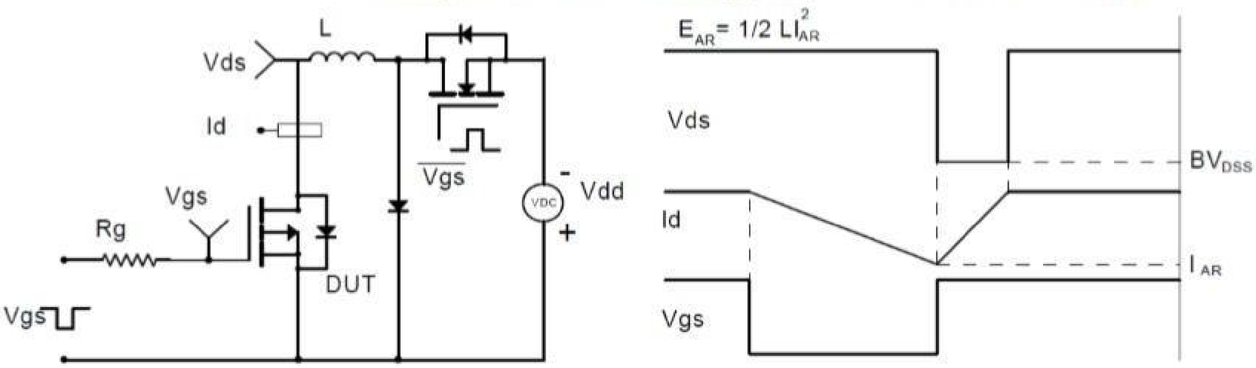
Gate Charge Test Circuit & Waveform



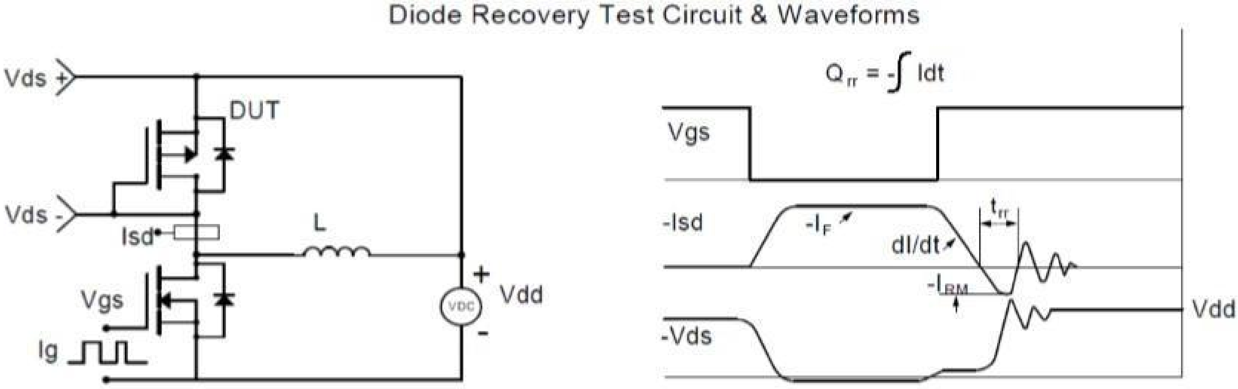
Resistive Switching Test Circuit & Waveforms



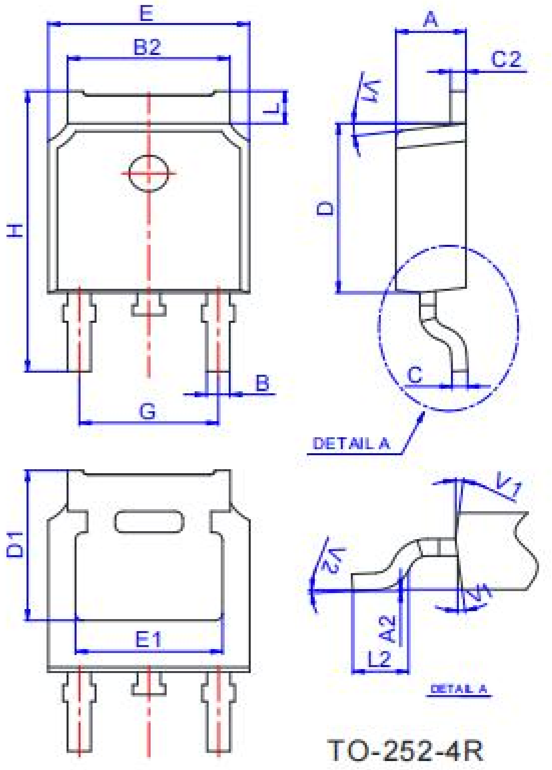
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



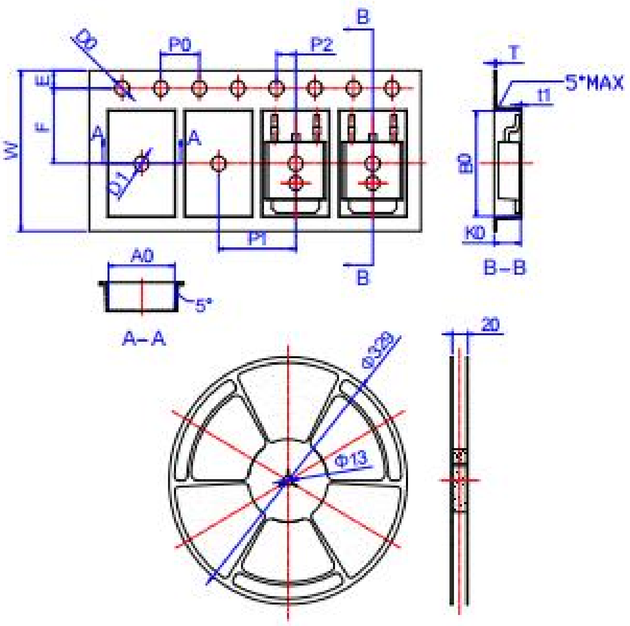
Diode Recovery Test Circuit & Waveforms



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°



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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