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

Product Summary

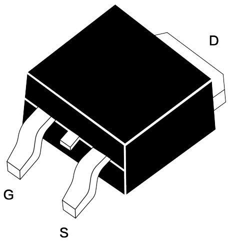
BVDSS	RDSON	ID
-100V	59mΩ	-25A

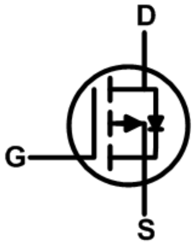
Description

The JH25P10 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 JH25P10 meet the RoHS and Green Product requirement 100% EAS guaranteed with full function reliability approved.

TO-252 Pin Configuration





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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C= 25°C	I_D	-25	A
	T_C= 100°C		-11	
Pulsed Drain Current[1]		I_{DM}	-72	A
Single Pulse Avalanche Energy[2]		EAS	42	mJ
Total Power Dissipation	T_C= 25°C	P_D	102	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient[3]	$R_{\theta JA}$	91	°C/W
Thermal Resistance from Junction-to-Case	$R_{\theta JC}$	1.22	°C/W

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

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics							
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-100	-	-	V
Gate-body Leakage current		I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	T_J= 25°C	I_{DSS}	V_{DS} = -100V, V_{GS} = 0V	-	-	-1	μA
	T_J= 100°C			-	-	-20	
Gate-Threshold Voltage		$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.5	-2	-2.5	V
Drain-Source On-Resistance[4]		$R_{DS(on)}$	V_{GS} = -10V, I_D = -10A	-	59	70	mΩ
			V_{GS} = -4.5V, I_D = -6A		120	150	
Forward Transconductance[4]		g_{fs}	V_{DS} = -10V, I_D = -10A	-	28	-	S
Dynamic Characteristics[5]							
Input Capacitance		C_{iss}	V_{DS} = -50V, V_{GS} = 0V, f = 1MHz	-	2859	-	pF
Output Capacitance		C_{oss}		-	93	-	
Reverse Transfer Capacitance		C_{rss}		-	68	-	
Gate Resistance		R_g	f = 1MHz	-	4.3	-	Ω
Switching Characteristics[5]							
Total Gate Charge		Q_g	V_{GS} = -10V, V_{DS} = -50V, I_D= -10A	-	53	-	nC
Gate-Source Charge		Q_{gs}		-	12	-	
Gate-Drain Charge		Q_{gd}		-	10	-	
Turn-On Delay Time		$t_{d(on)}$	V_{GS} = -10V, V_{DD} = -50V, R_G = 3Ω, I_D= -10A	-	8	-	ns
Rise Time		t_r		-	27	-	
Turn-Off Delay Time		$t_{d(off)}$		-	155	-	
Fall Time		t_f		-	77	-	
Body Diode Reverse Recovery Time		t_{rr}	I_F = -10A,dI/dt= 100A/μs	-	36	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}		-	40	-	nC
Drain-Source Body Diode Characteristics							
Diode Forward Voltage[4]		V_{SD}	I_S = -10A, V_{GS} = 0V	-	-0.9	-1.3	V
Continuous Source Current	T_C= 25°C	I_S	-	-	-	25	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.
2. The EAS data shows Max. rating . The test condition is V_{DD}= -35V, V_{GS}= -10V, L= 0.5mH, I_{AS}= -23A
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.
4. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
5. This value is guaranteed by design hence it is not included in the production test..

Typical Performance Characteristics

Fig 1: Output Characteristics

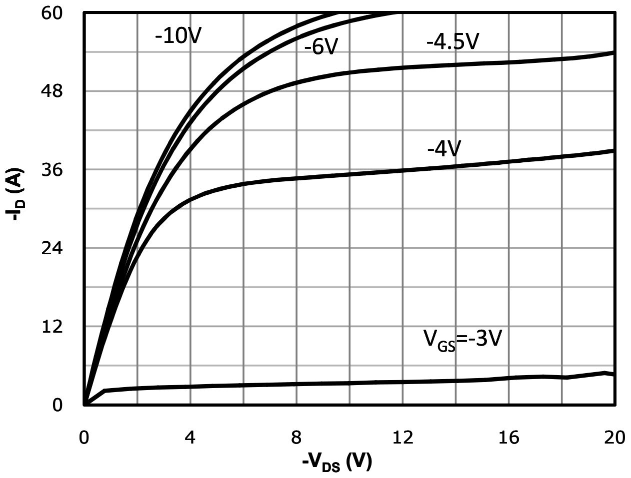


Fig 2: Transfer Characteristics

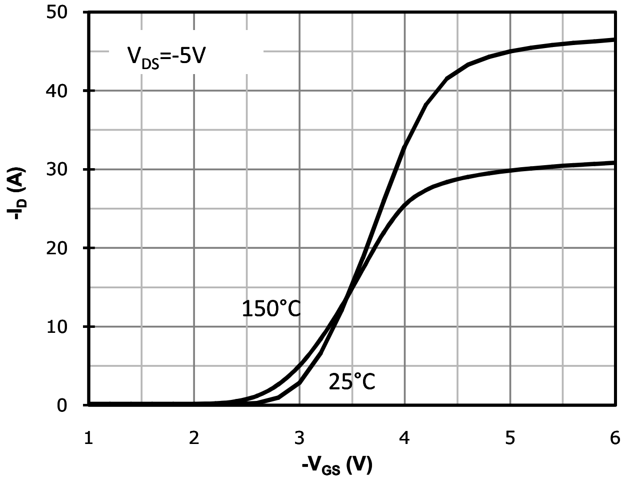


Fig 3: Rds(on) vs Drain Current and Gate Voltage

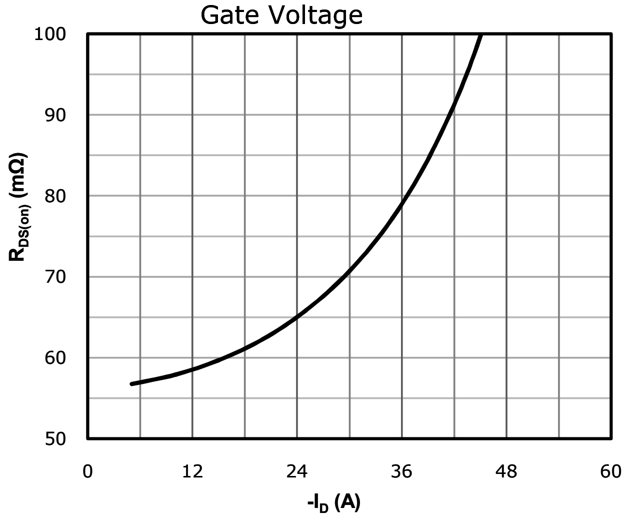


Fig 4: Rds(on) vs Gate Voltage

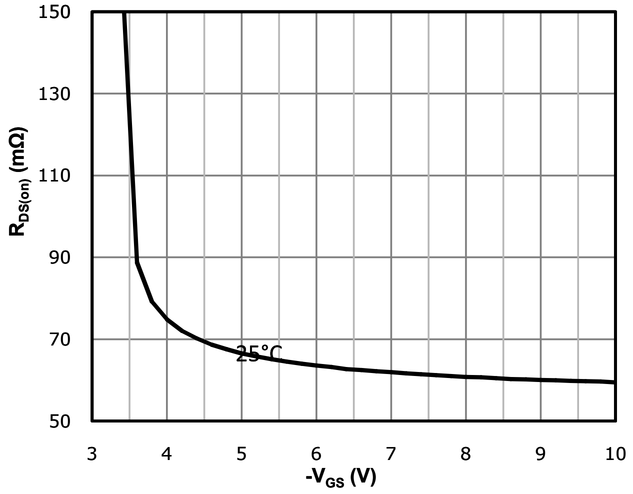


Fig 5: Rds(on) vs. Temperature

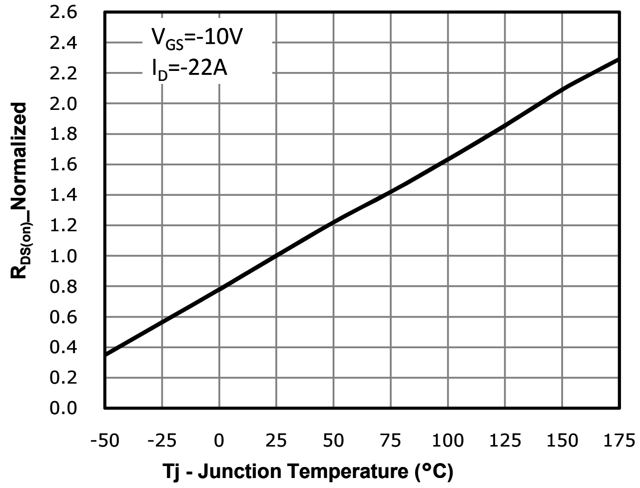


Fig 6: Capacitance Characteristics

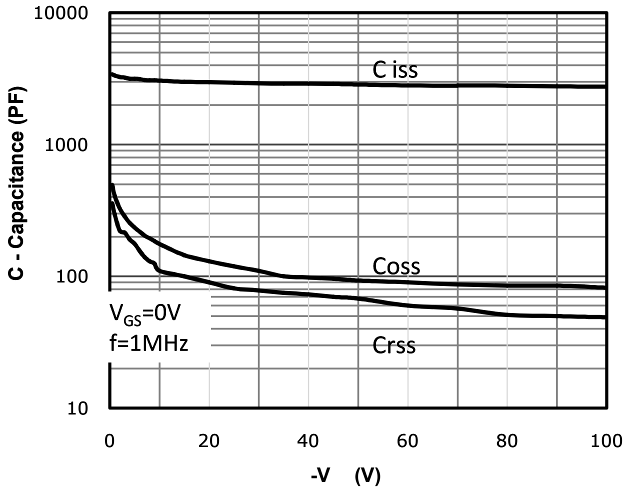


Fig 7: Gate Charge Characteristics

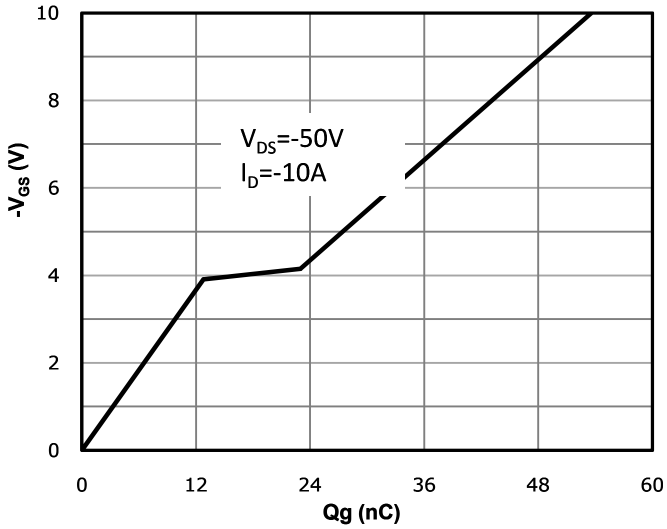


Fig 8: Body-diode Forward Characteristics

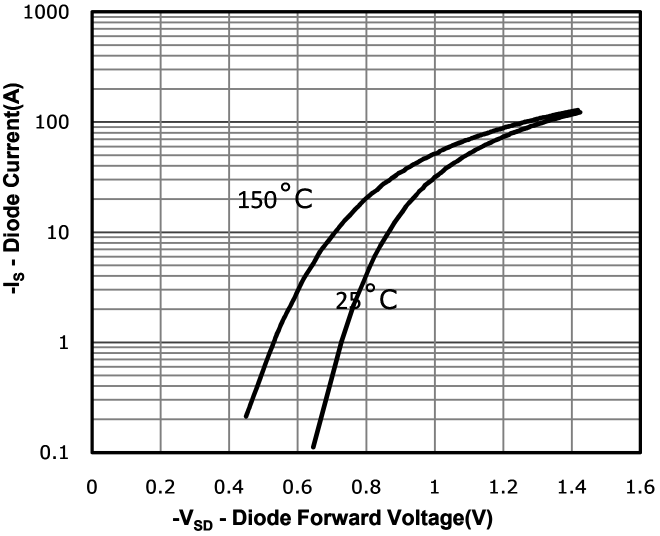


Fig 9: Power Dissipation

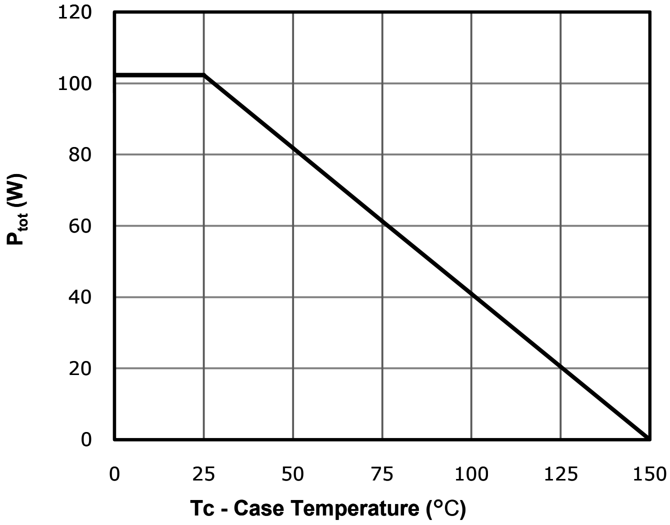


Fig 10: Drain Current Derating

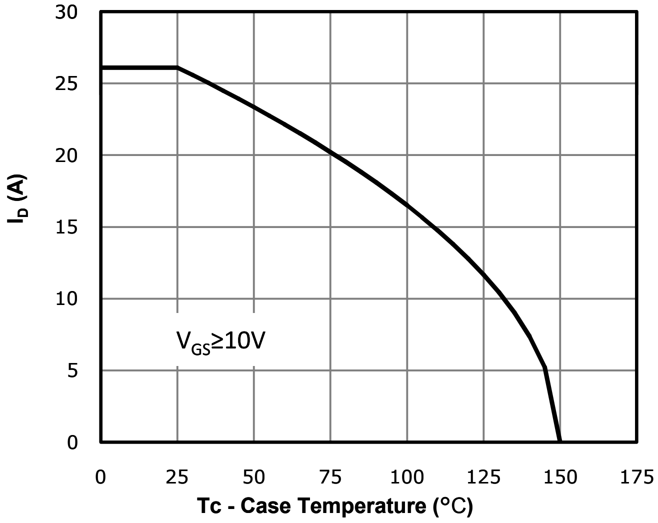


Fig 11: Safe Operating Area

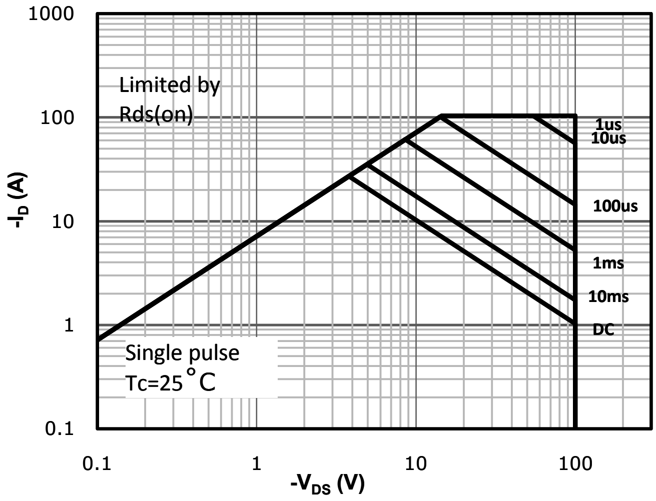
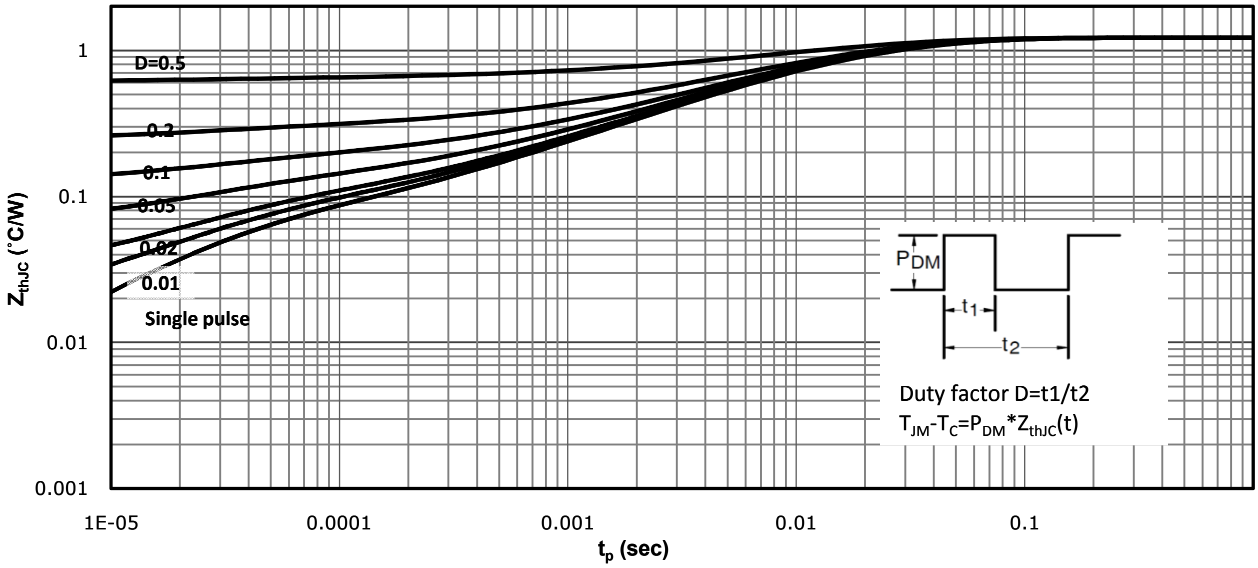
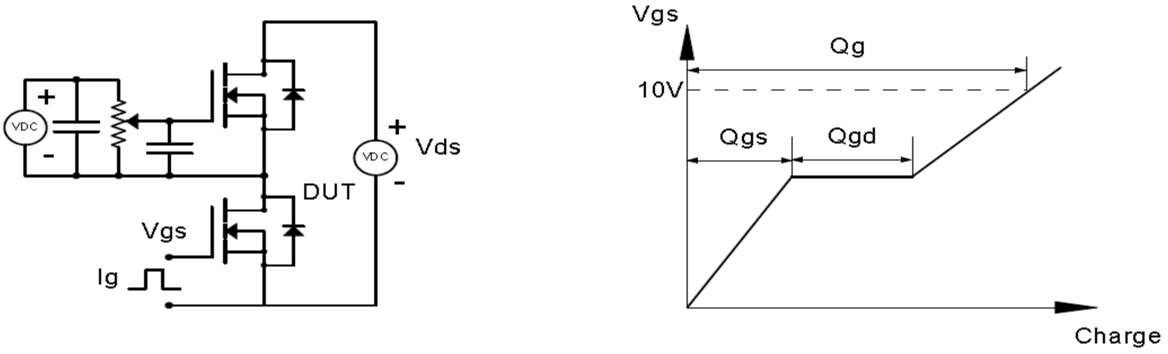


Fig 12: Max. Transient Thermal Impedance

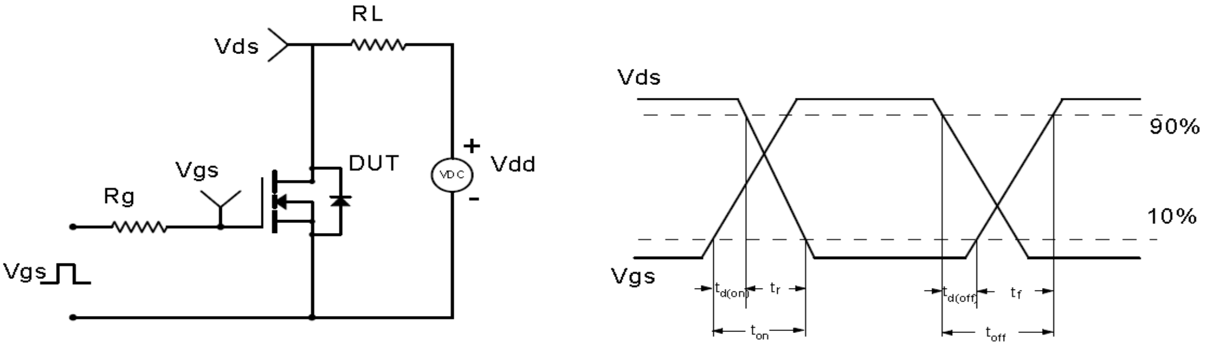


Test Circuit & Waveform

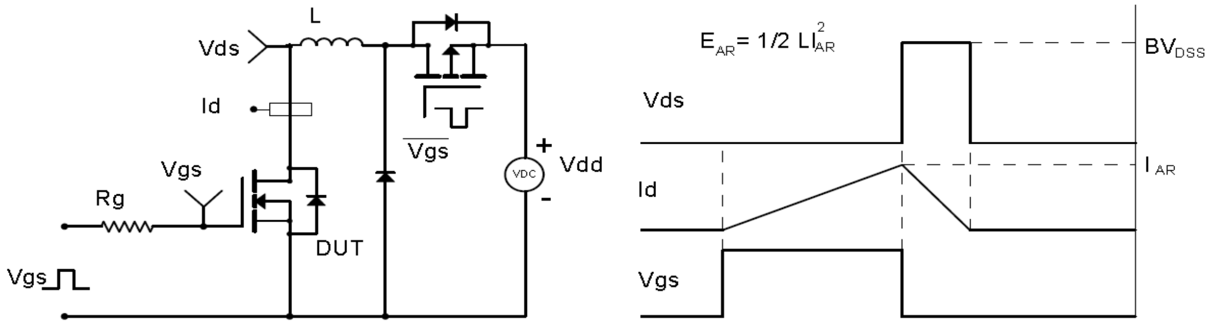
Gate Charge Test Circuit & Waveform



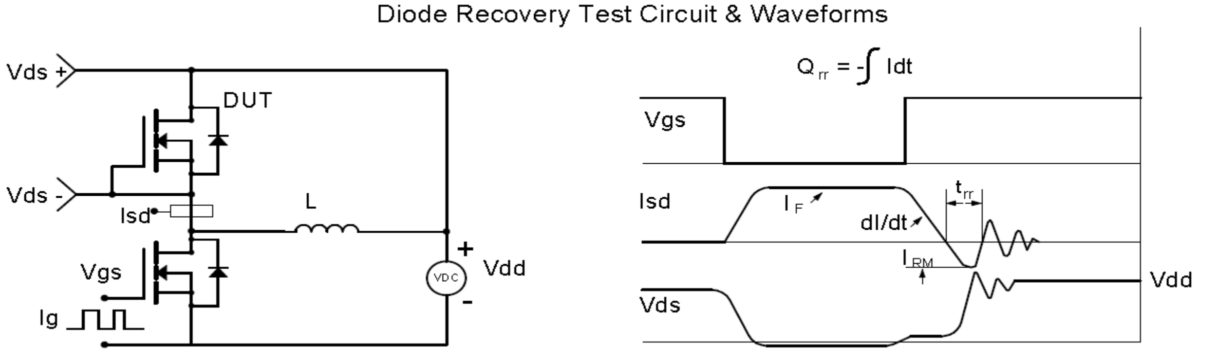
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

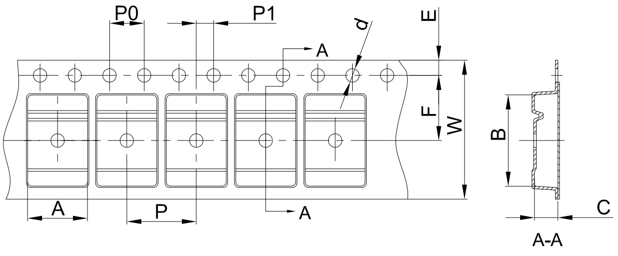


Diode Recovery Test Circuit & Waveforms



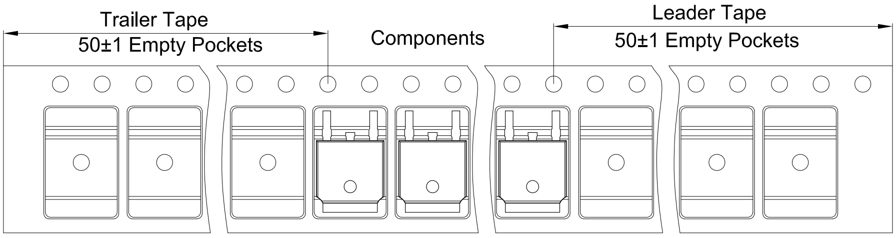
TO-252-2L Tape and Reel

TO-252 Embossed Carrier Tape

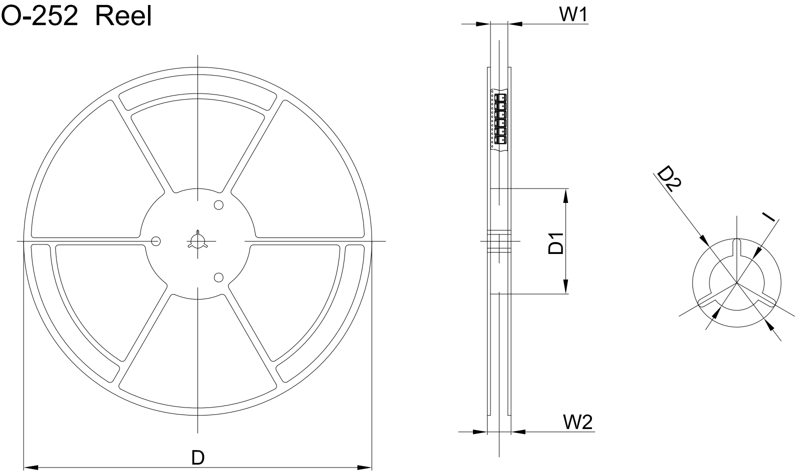


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-252	6.90	10.50	2.70	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00

TO-252 Tape Leader and Trailer

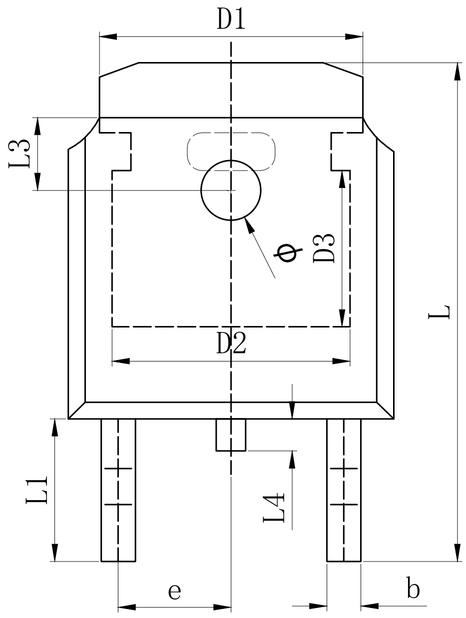


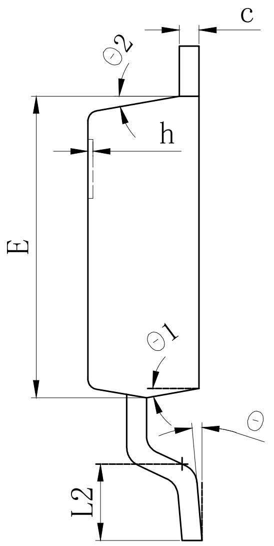
TO-252 Reel

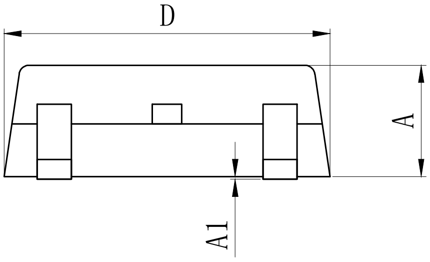


Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13"Dia	330.00	100.00	Ø21.00	16.40	21.00	Ø13.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13inch	2,500 pcs	340×336×29	25,000 pcs	353×346×365	







SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	2.200	2.300	2.400
A1	0.000		0.127
b	0.640	0.690	0.740
c(电镀后)	0.460	0.520	0.580
D	6.500	6.600	6.700
D1	5.334 REF		
D2	4.826 REF		
D3	3.166 REF		
E	6.000	6.100	6.200
e	2.286 TYP		
h	0.000	0.100	0.200
L	9.900	10.100	10.300
L1	2.888 REF		
L2	1.400	1.550	1.700
L3	1.600 REF		
L4	0.600	0.800	1.000
Φ	1.100	1.200	1.300
θ	0°		8°
θ1	9° TYP		
θ2	9° TYP		

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