- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent Cdv/dt effect decline
- ★ Advanced high cell density Trench technology

Product Summary

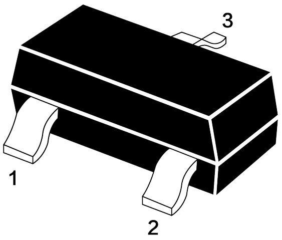
BVDSS	RDSON	ID
60V	62 mΩ	3A

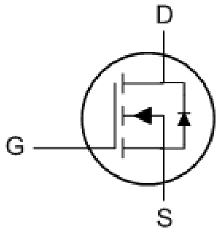
Description

The JH6003A is the high cell density trenched N-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

The JH6003A meet the RoHS and Green Product requirement with full function reliability approved.

SOT-23 Pin Configuration





■ **Absolute Maximum Ratings** (T_A=25℃ 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℃	I_D	3	A
	T_A=100℃		1.9	
Pulsed Drain Current [A]		I_{DM}	18	A
Total Power Dissipation [B]	T_A=25℃	P_D	1.2	W
	T_A=100℃		0.45	
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

■Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient [C]	Steady-State	$R_{\theta JA}$	85	105	℃/W

■ **Electrical Characteristics** (T_J=25℃ 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, Tj=150℃	-	-	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	-	62	85	mΩ
		V_{GS}=4.5V, I_D=3A	-	70	95	
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		-	-	3	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.

■Typical Electrical and Thermal Characteristics Diagrams

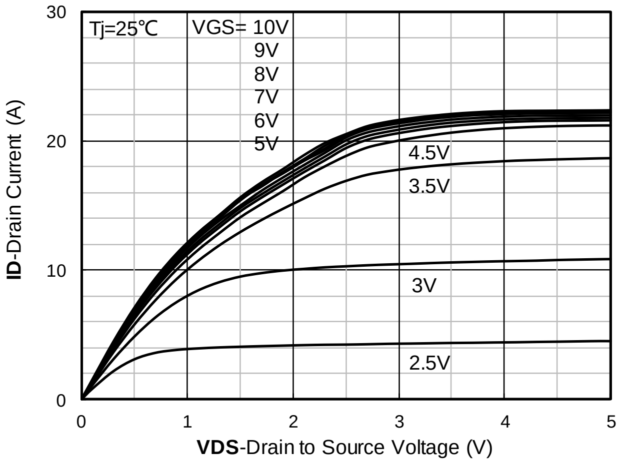


Figure 1. Output Characteristics

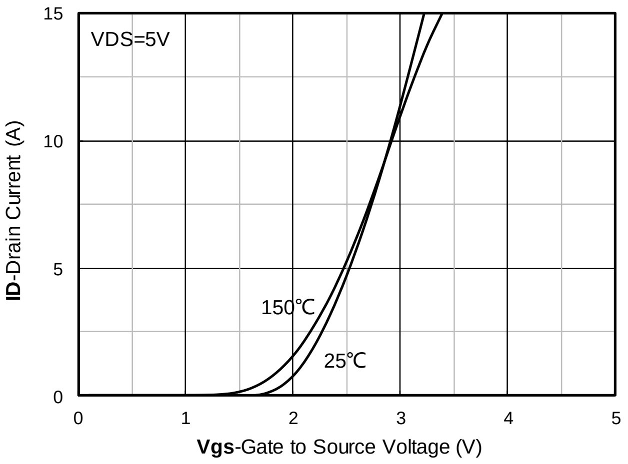


Figure 2. Transfer Characteristics

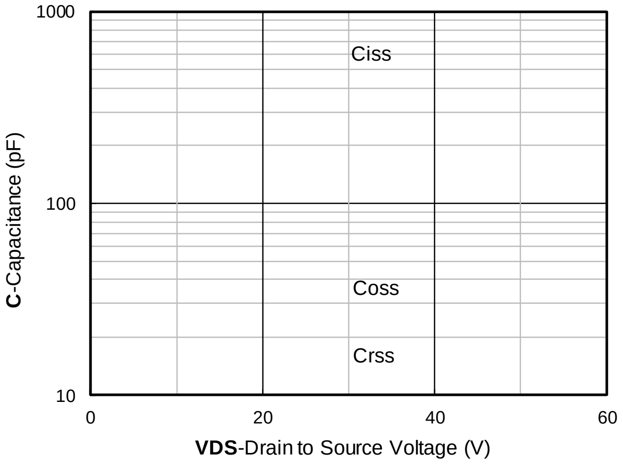


Figure 3. Capacitance Characteristics

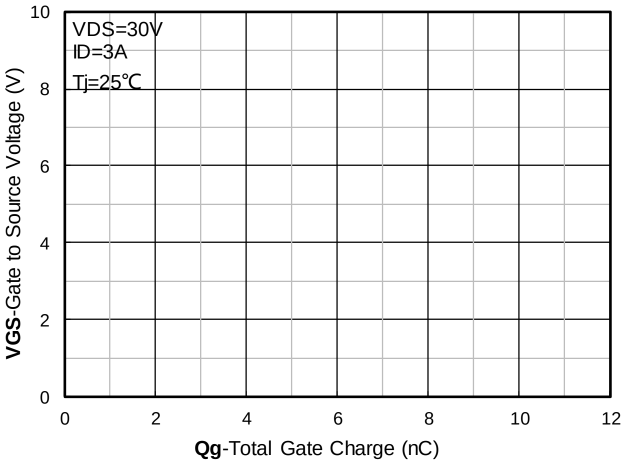


Figure 4. Gate Charge

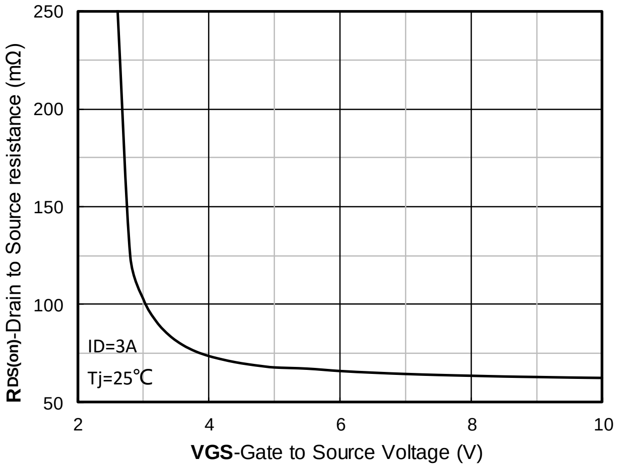


Figure 5. On-Resistance vs Gate to Source Voltage

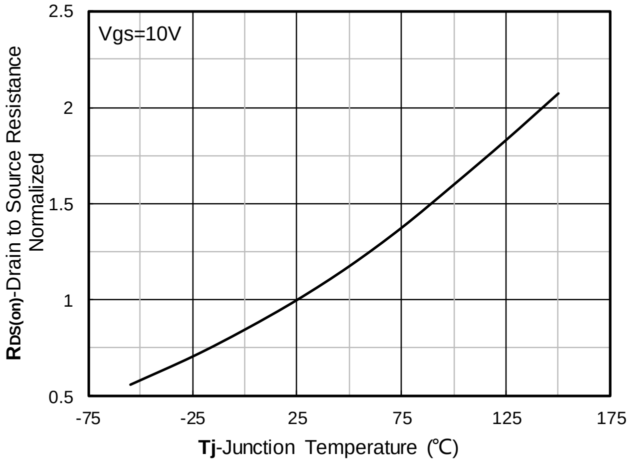


Figure 6. Normalized On-Resistance

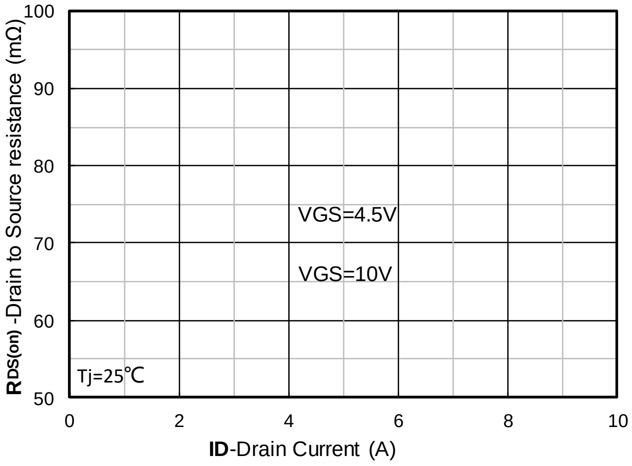


Figure 7. RDS(on) VS Drain Current

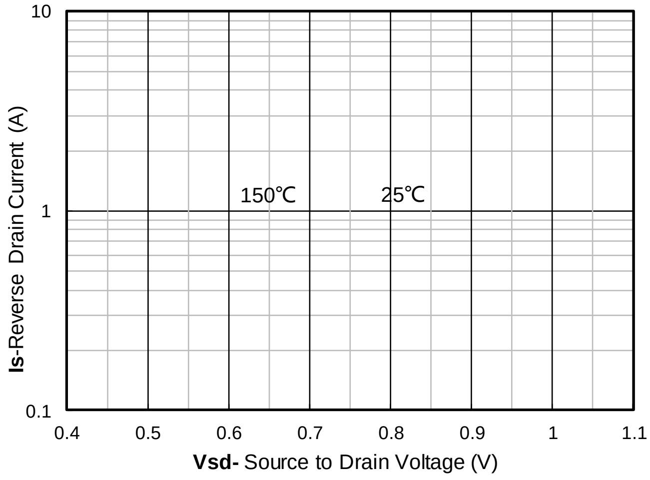


Figure 8. Forward characteristics of reverse diode

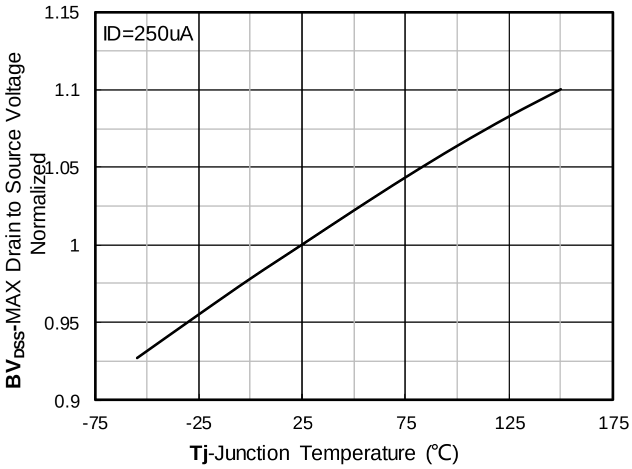


Figure 9. Normalized breakdown voltage

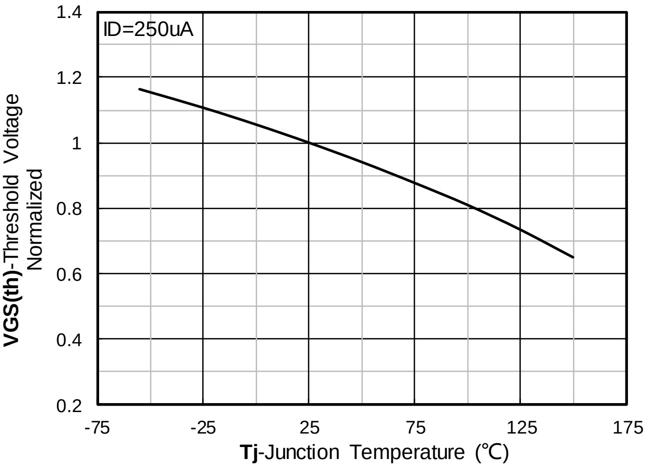


Figure 10. Normalized Threshold voltage

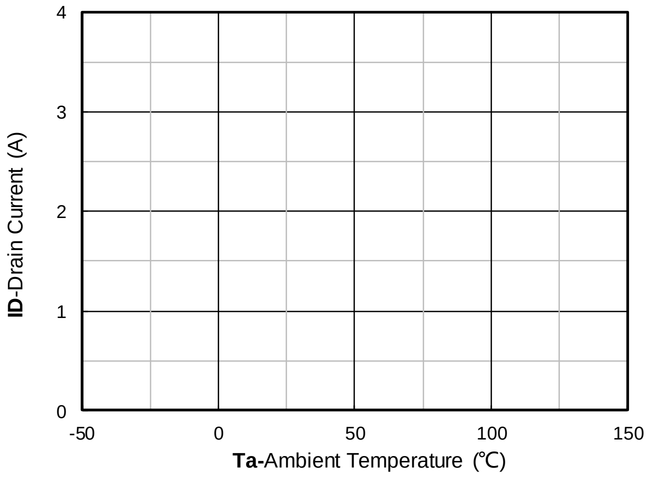


Figure 11. Current dissipation

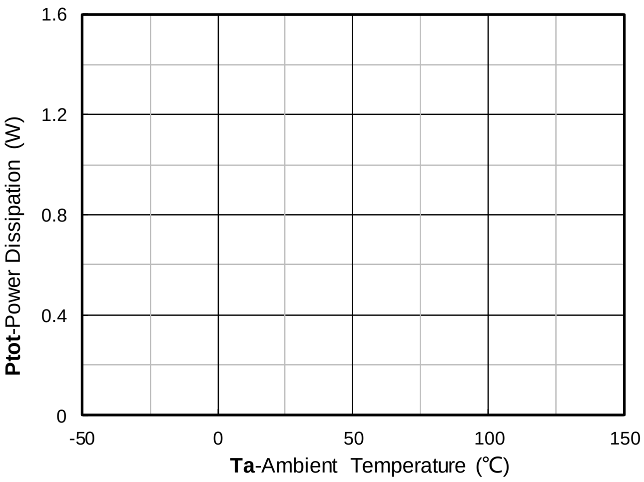


Figure 12. Power dissipation

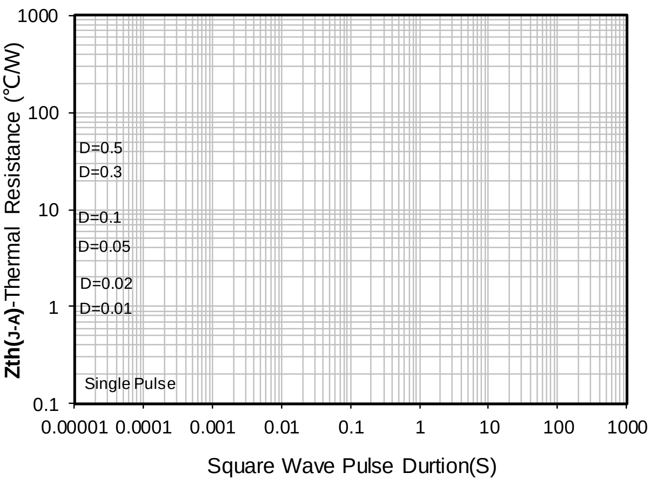


Figure 13. Maximum Transient Thermal Impedance

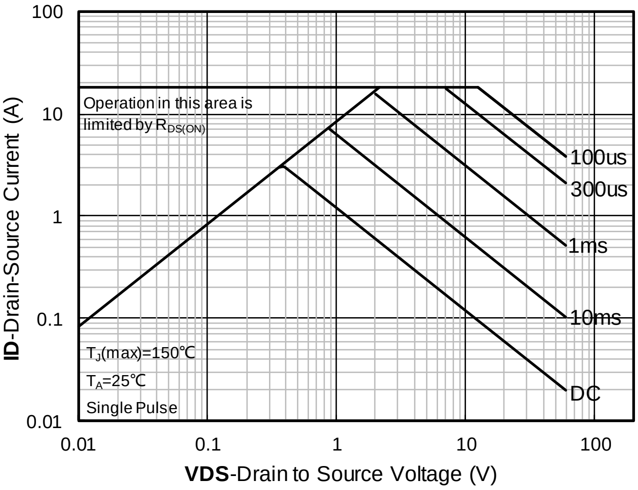


Figure 14. Safe Operation Area

■ Test Circuits & Waveforms

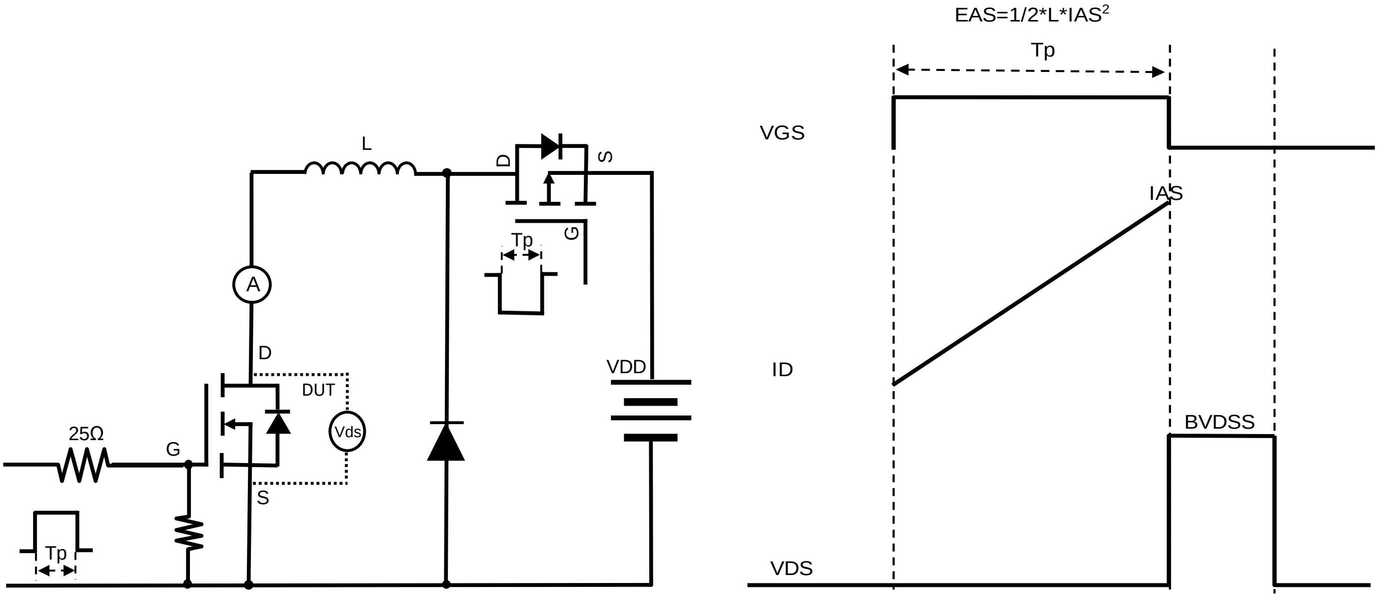


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

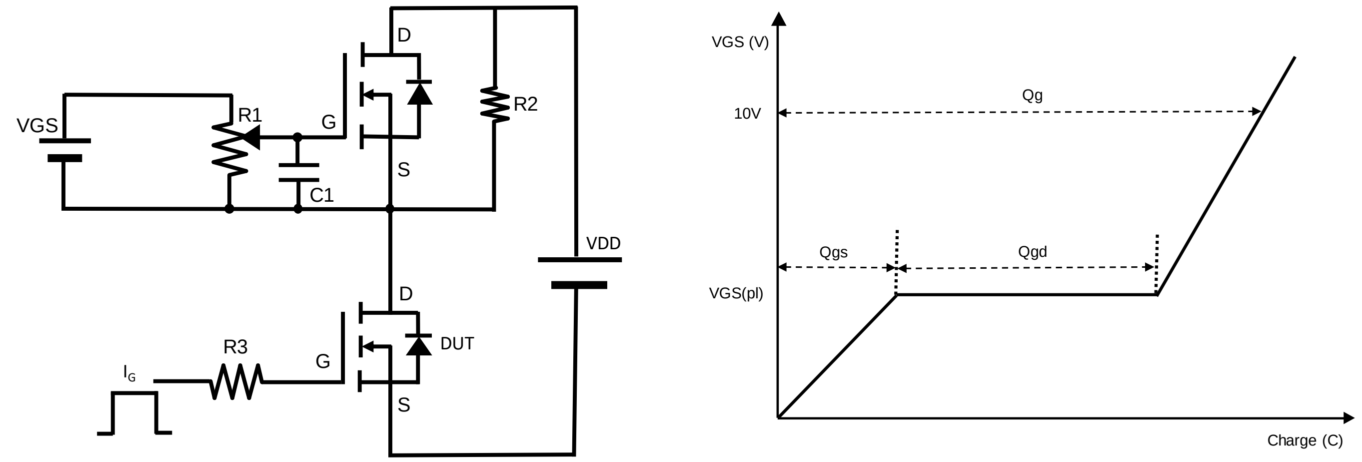


Figure B. Gate Charge Test Circuit & Waveform

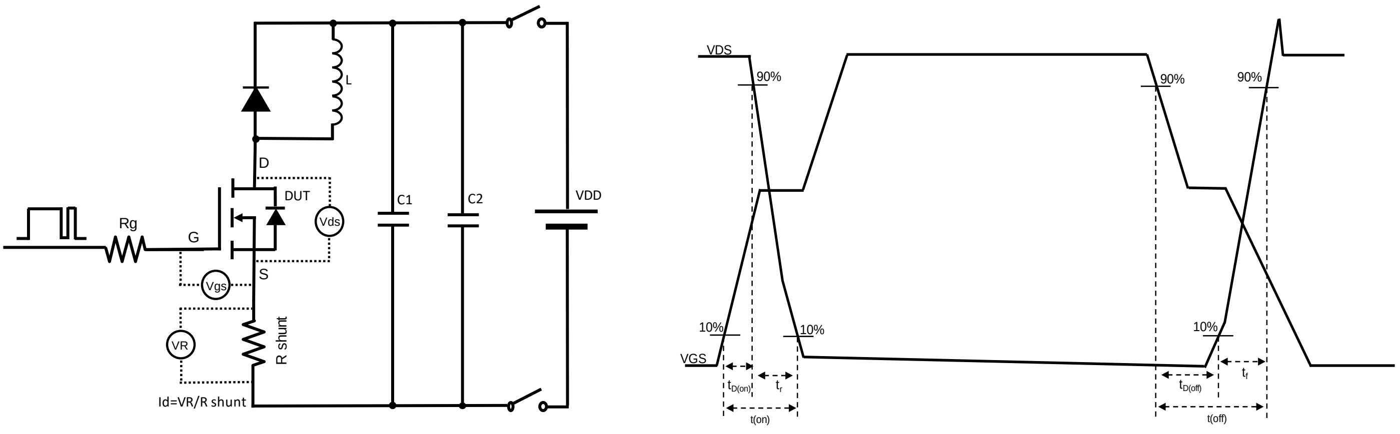


Figure C. Resistive Switching Test Circuit & Waveform

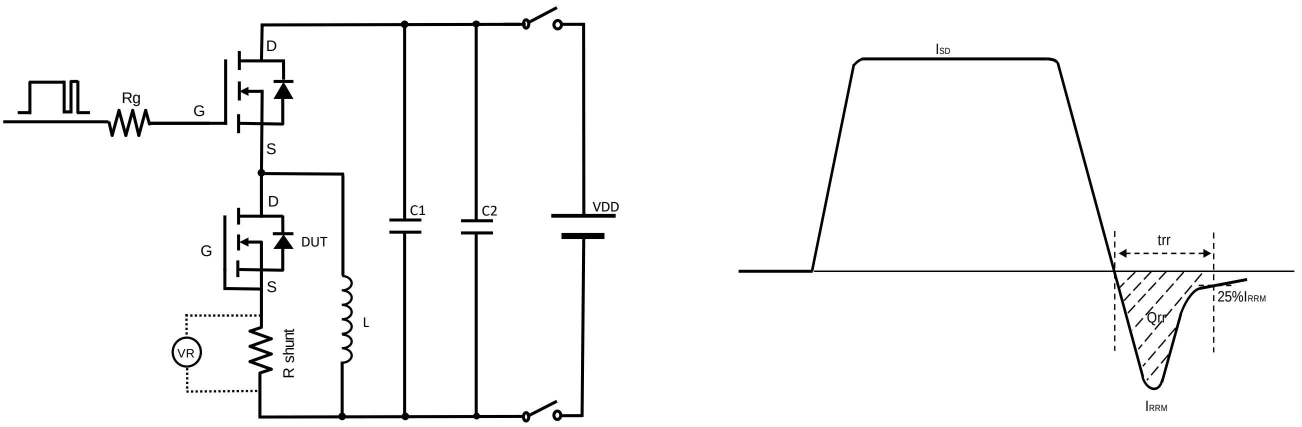
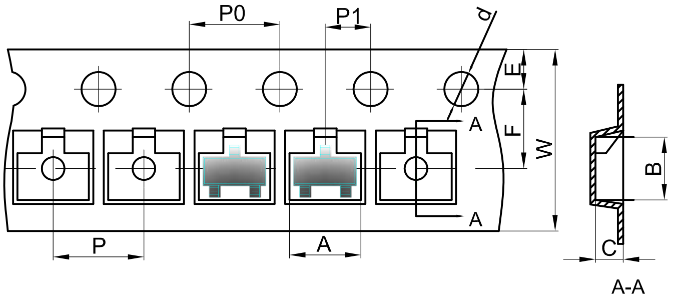


Figure D. Diode Recovery Test Circuit & Waveform

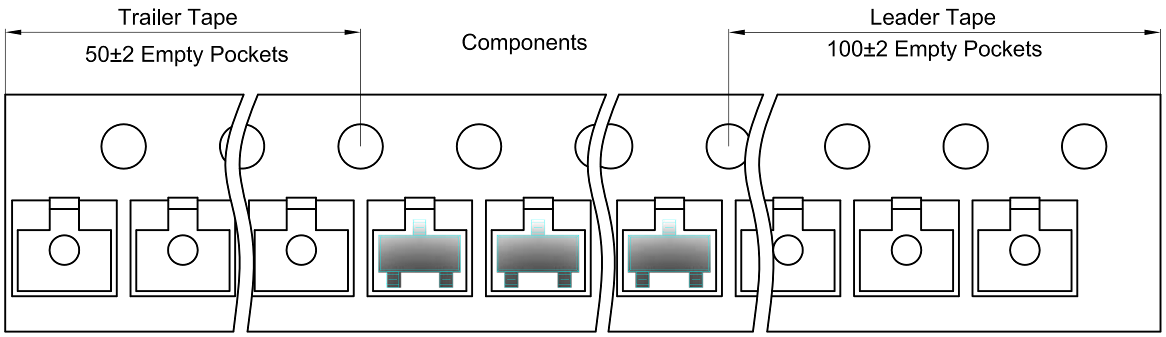
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

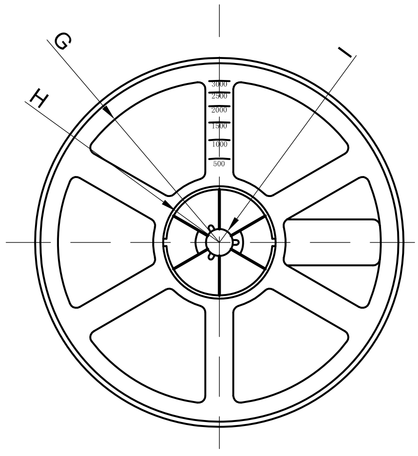


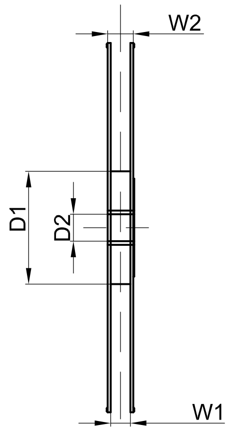
Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

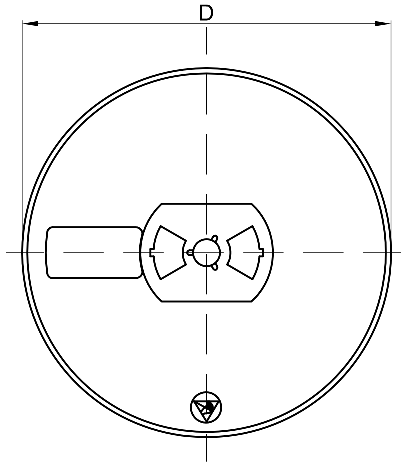
SOT-23 Tape Leader and Trailer



SOT-23 Reel

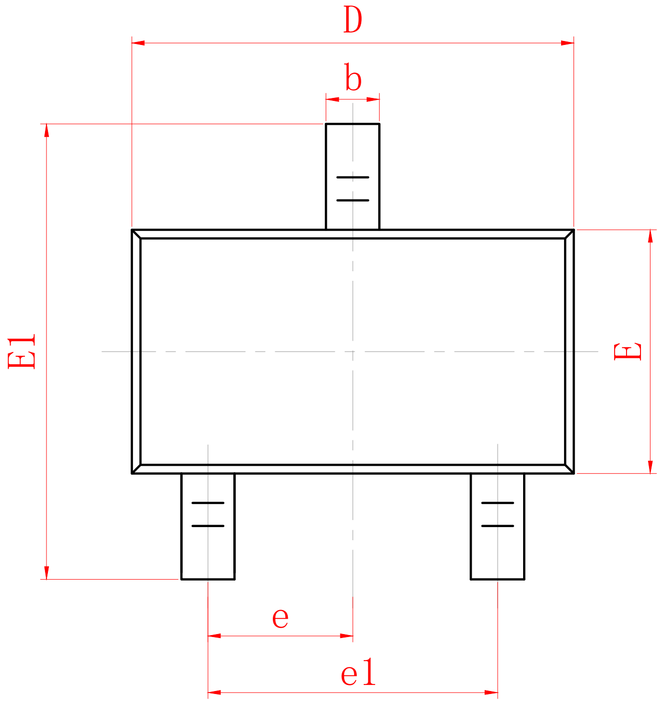


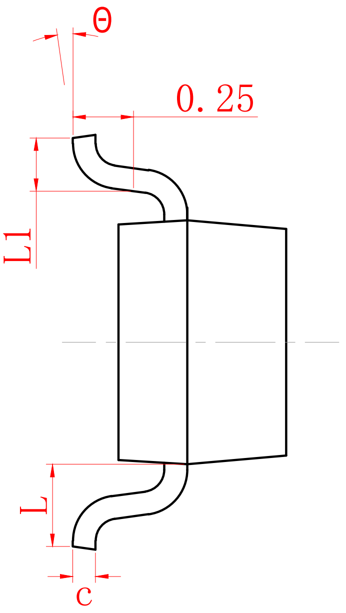




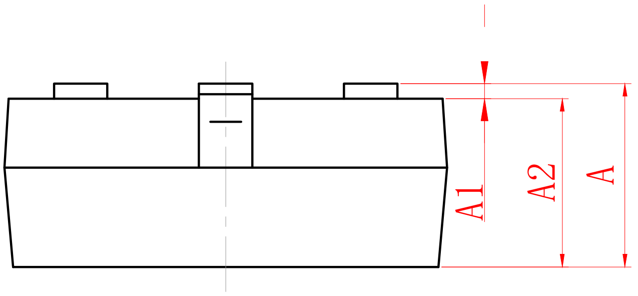
Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	





SYMBOL	MILLIMETER	
	MIN	MAX
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950 TYP	
e1	1.800	2.000
L	0.550 REF	
L1	0.300	0.500
θ	0°	8°



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