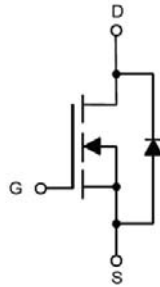


**SOT-23**



- $V_{DS}$  20V
- $I_D$  4.5A
- $R_{DS(ON)}$ ( at  $V_{GS}=4.5V$ )  $<25m\Omega$
- $R_{DS(ON)}$ ( at  $V_{GS}=2.5V$ )  $<32m\Omega$

- Trench Power MV MOSFET technology
- High Speed switching
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

- PWM application
- Load switch

( $T_A=25^\circ C$  unless otherwise noted)

Drain-source Voltage		$V_{DS}$	20	V
Gate-source Voltage		$V_{GS}$	$\pm 10$	V
Drain Current	$T_A=25$	$I_D$	4.5	A
	$T_A=100$		2.8	
Pulsed Drain Current <sup>A</sup>		$I_{DM}$	30	A
Total Power Dissipation <sup>B</sup>	$T_A=25$	$P_D$	1	W
	$T_A=100$		0.4	
Junction and Storage Temperature Range		$T_J, T_{STG}$	-55~+150	

Thermal Resistance Junction-to-Ambient <sup>C</sup>		Steady-State	$R_{\theta JA}$	100	125	/W
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(Example)

YJL2300C	F2	2300C.	3000	30000	120000	7" reel
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(T<sub>J</sub>=25°C unless otherwise noted)

Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	20	-	-	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V	-	-	1	μA
		V <sub>DS</sub> =20V, V <sub>GS</sub> =0V, T <sub>J</sub> =150	-	-	100	
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±10V, V <sub>DS</sub> =0V	-	-	±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA	0.4	0.6	1	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =4.5A	-	20	25	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =3A	-	25	32	
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =2.7A	-	33	46	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =4.5A, V <sub>GS</sub> =0V	-	0.9	1.2	V
Gate resistance	R <sub>G</sub>	f=1MHz, Open drain	-	2.7	-	Ω
Maximum Body-Diode Continuous Current	I <sub>S</sub>		-	-	4.5	A
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz	-	390	-	pF
Output Capacitance	C <sub>oss</sub>		-	75	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	70	-	
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =10V, I <sub>D</sub> =4.5A	-	12.5	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	1	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	2.5	-	
Reverse Recovery Charge	Q <sub>rr</sub>	I <sub>F</sub> =4.5A, di/dt=150A/us	-	3.5	-	nC
Reverse Recovery Time	t <sub>rr</sub>		-	10	-	ns
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =10V, I <sub>D</sub> =4.5A R <sub>GEN</sub> =2.2Ω	-	4.5	-	ns
Turn-on Rise Time	t <sub>r</sub>		-	28	-	
Turn-off Delay Time	t <sub>D(off)</sub>		-	21	-	
Turn-off fall Time	t <sub>f</sub>		-	2.5	-	

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

B. P<sub>d</sub> is based on max. junction temperature, using junction-case thermal resistance.

C. The value of R<sub>θJA</sub> is measured with the device mounted on the minimum recommend pad size, in the still air environment with T<sub>A</sub> =25 . The maximum allowed junction temperature of 150 . The value in any given application depends on the user's specific board design.

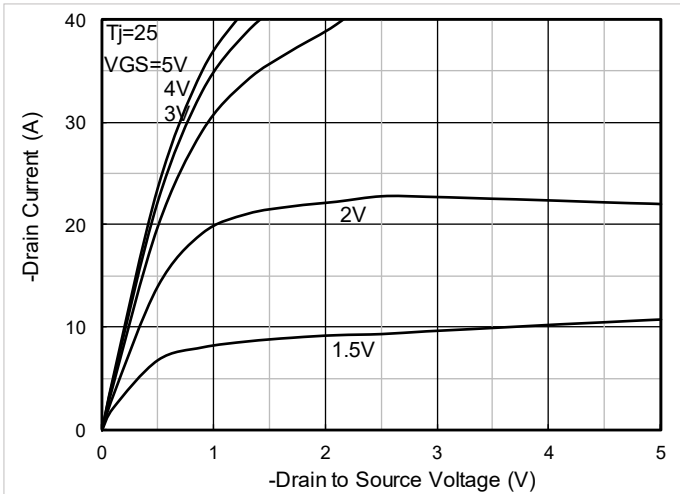


Figure 1. Output Characteristics

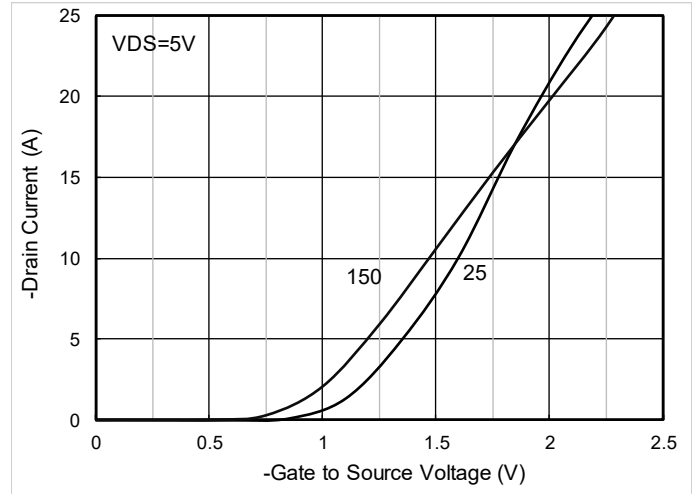


Figure 2. Transfer Characteristics

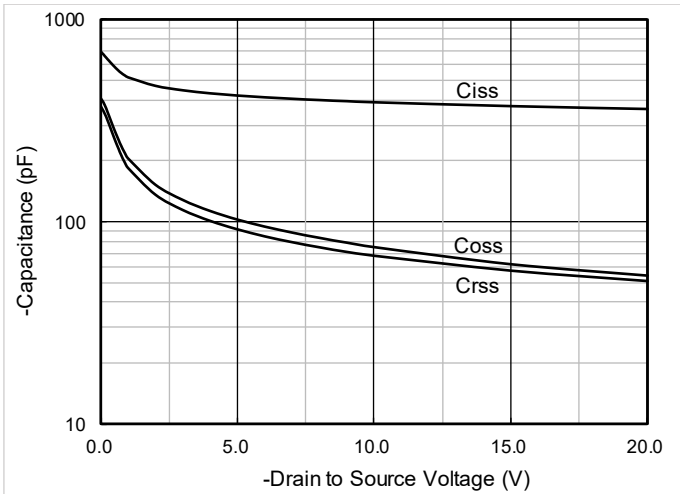


Figure 3. Capacitance Characteristics

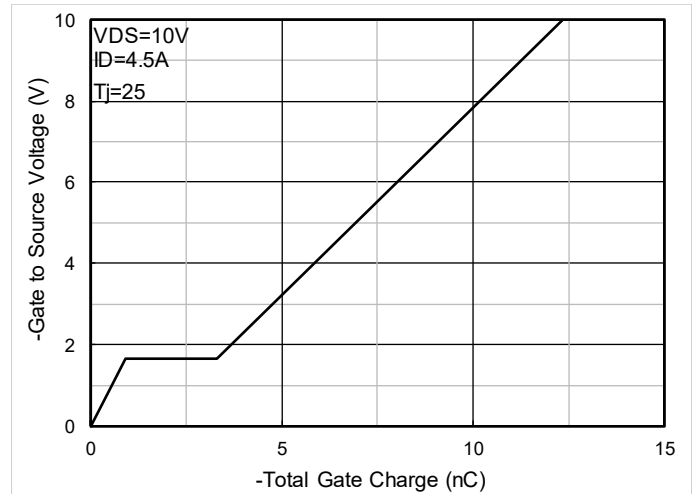


Figure 4. Gate Charge

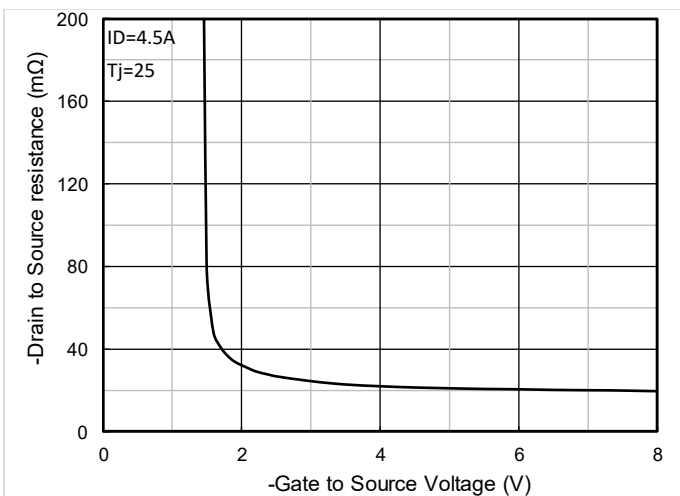


Figure 5. On-Resistance vs Gate to Source Voltage

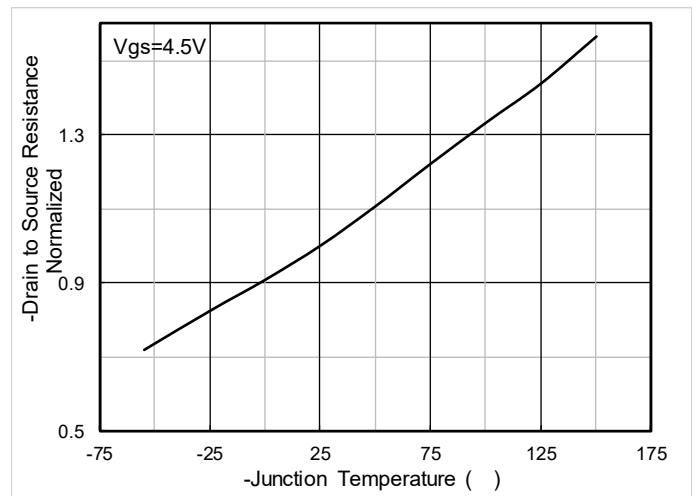


Figure 6. Normalized On-Resistance

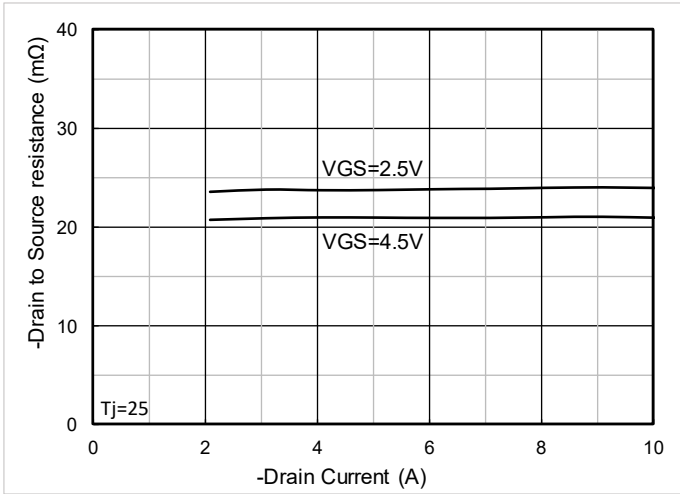


Figure 7.  $R_{DS(on)}$  VS Drain Current

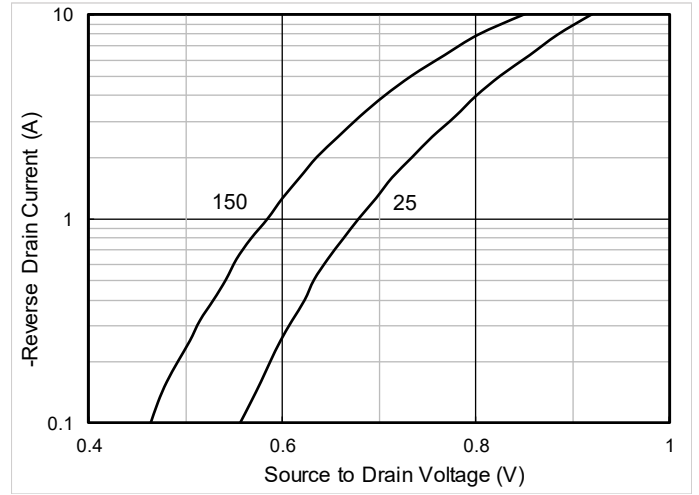


Figure 8. Forward characteristics of reverse diode

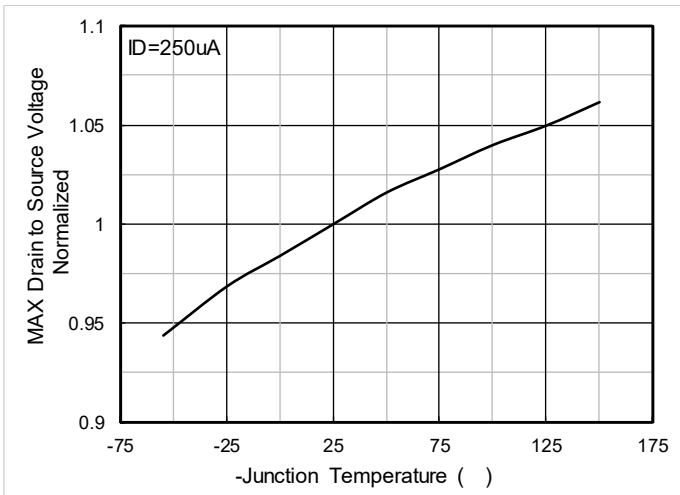


Figure 9. Normalized breakdown voltage

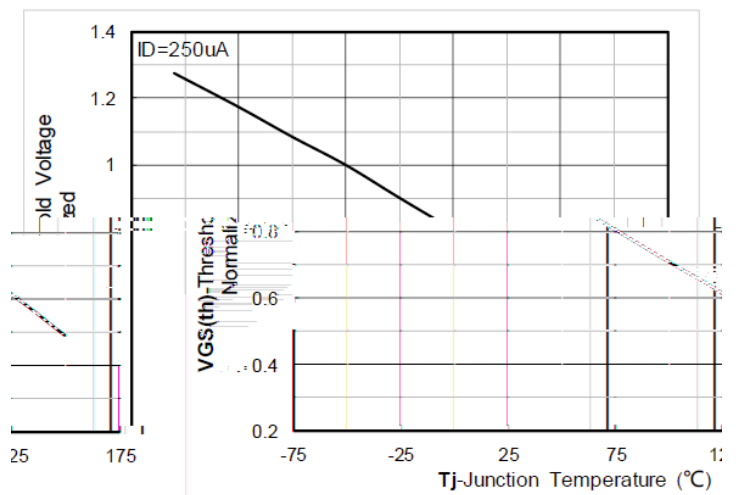


Figure 10. Normalized Threshold voltage

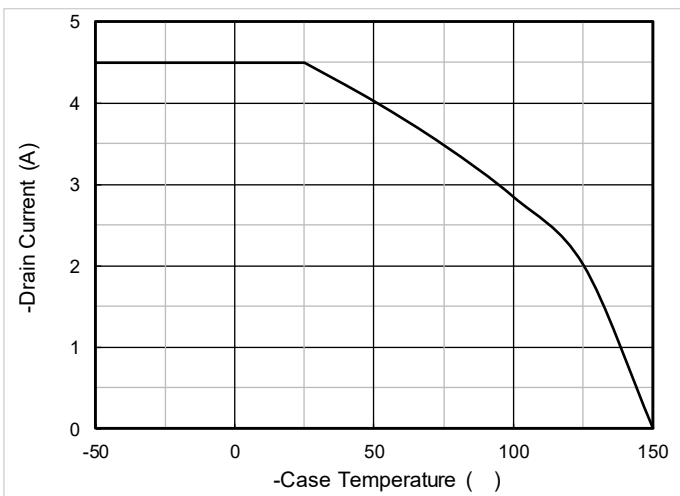


Figure 11. Current dissipation

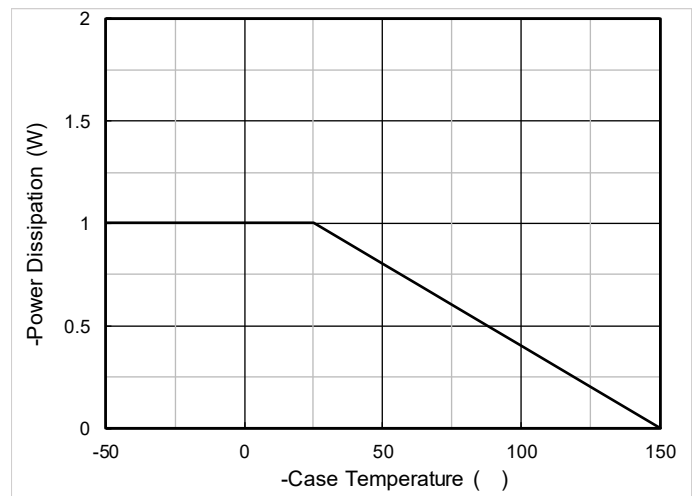


Figure 12. Power dissipation

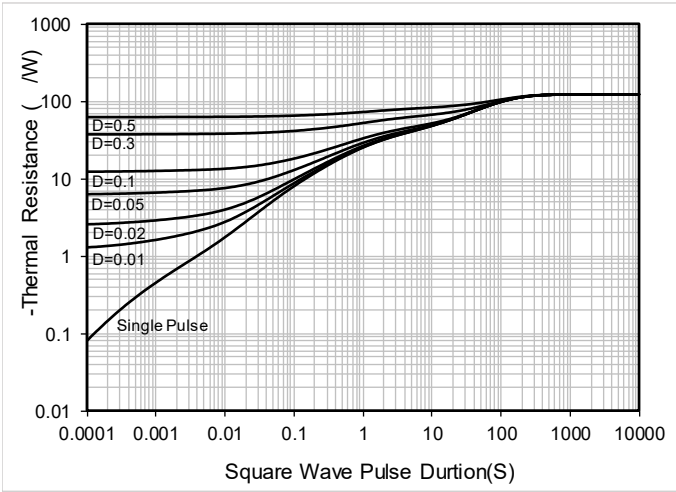


Figure 13. Maximum Transient Thermal Impedance

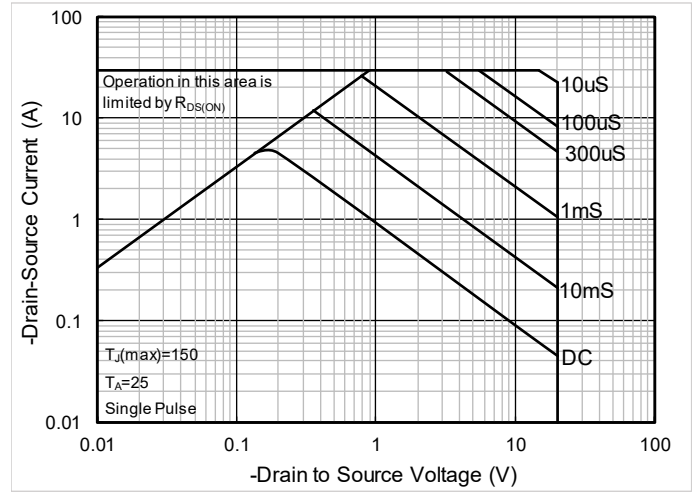


Figure 14. Safe Operation Area

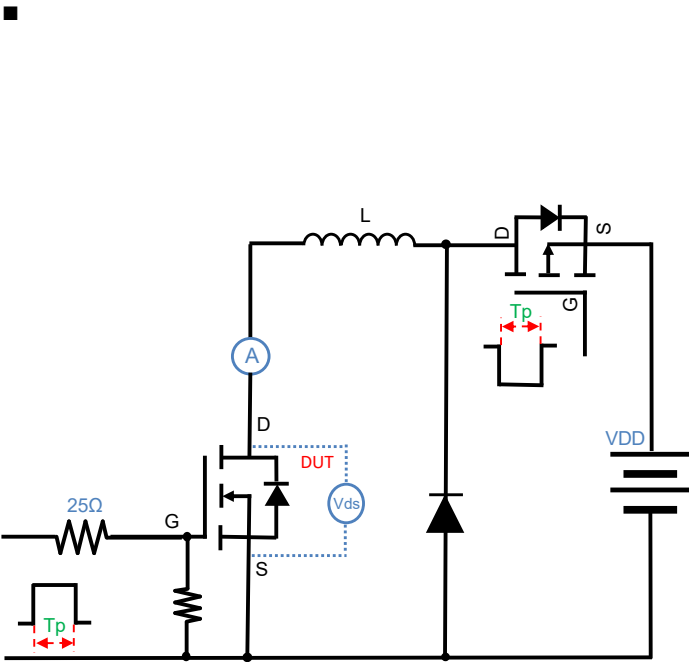
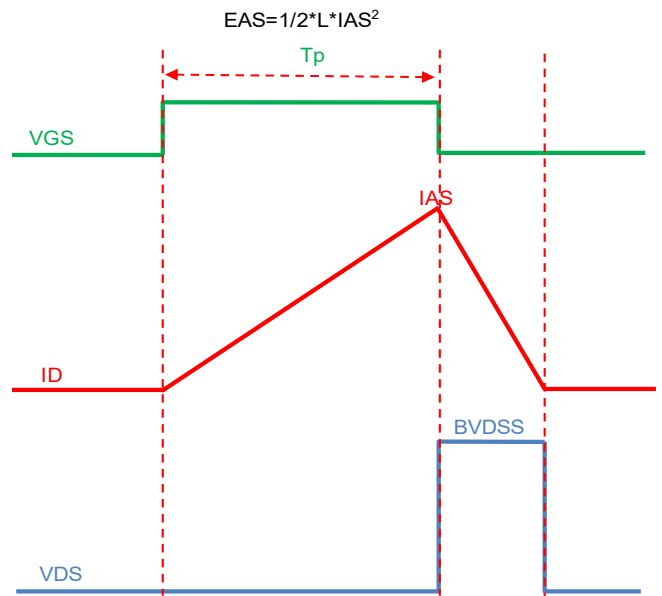
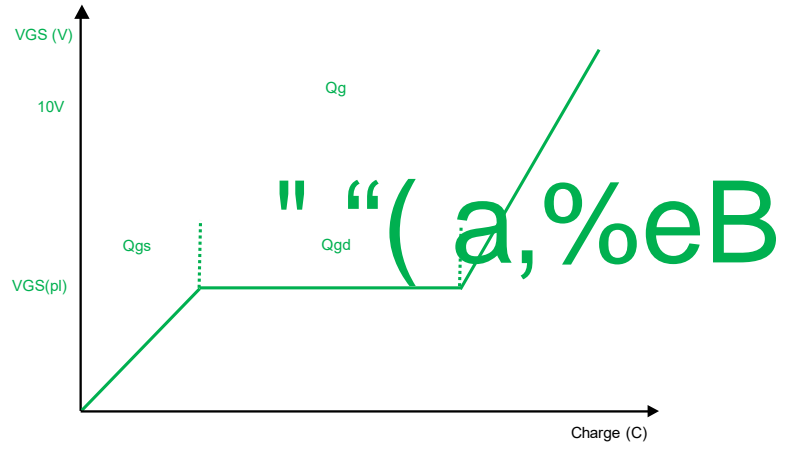
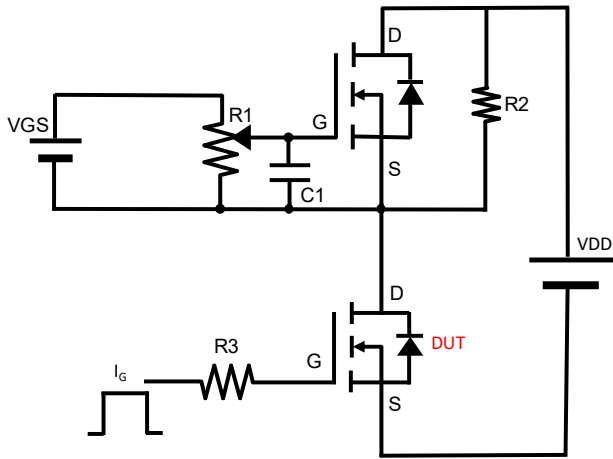
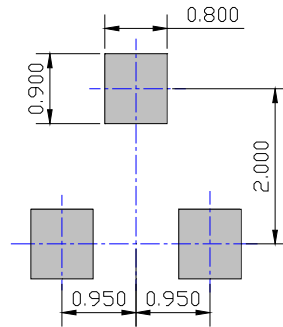
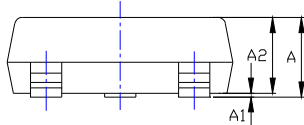
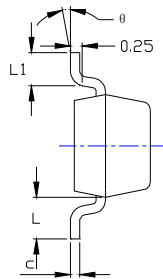
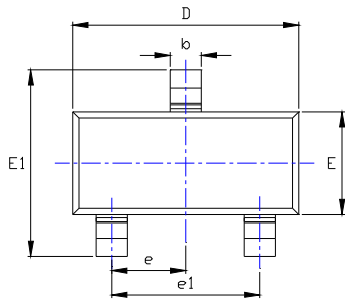


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform







UNIT: mm

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.200	0.300	0.500
θ	0°	8°	0°	8°

**NOTE:**

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



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