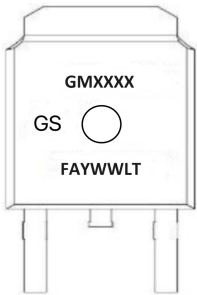
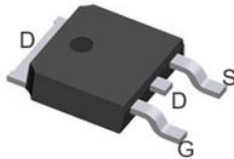


Product Summary

V_{DS} (V)	$R_{DS(on),max}$ (mΩ)	I_D (A)
100	110 @ $V_{GS} = 10V$	15 ⁽¹⁾

View and Internal Schematic Diagram



TO-252

NOTE:
 LOGO - GS
 GMXXXXX- Part number code
 F - Fab location code
 A - Assembly location code
 Y - Year code
 WW - Week code
 L&T - Assembly lot code

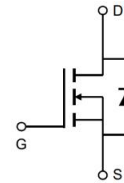
Features

- Low $R_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed
- 100% avalanche tested

Application

- Primary side switch
- Synchronous rectification
- DC/DC conversion
- Load switching
- Boost converters
- PWM Application

Equivalent circuit



Absolute Maximum Rating ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Limit	Unit
Drain-source voltage	V_{DS}	100	V
Gate-source voltage	V_{GS}	± 20	
Continuous drain current	$T_C=25^\circ\text{C}$ ⁽¹⁾	15	A
	$T_C=100^\circ\text{C}$	10	
Pulsed drain current ⁽²⁾	$I_{D,pulse}$	60	
Avalanche energy, single pulse ⁽³⁾	E_{AS}	25	mJ
Power dissipation	$T_C=25^\circ\text{C}$	56	W
Operating junction and storage temperature range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

Thermal Characteristic ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Max.	Unit
Thermal resistance, junction-to-case	$R_{\theta JC}$	2.7	$^\circ\text{C/W}$

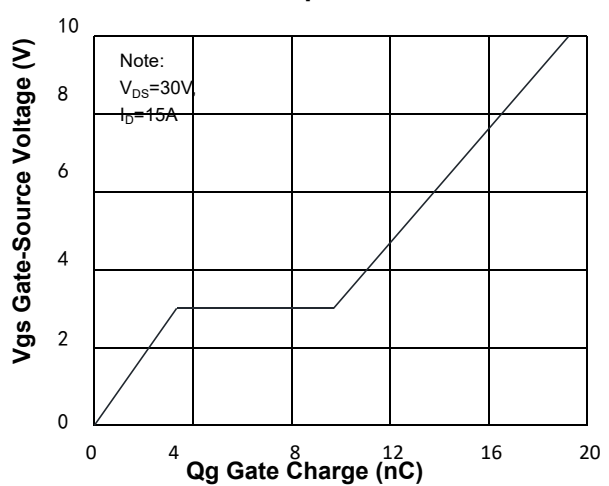
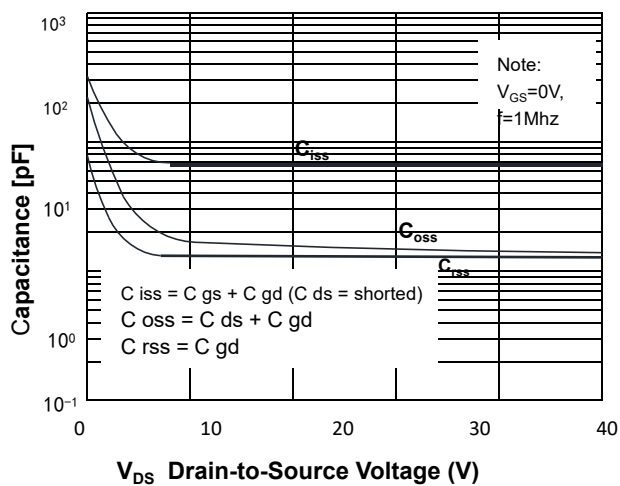
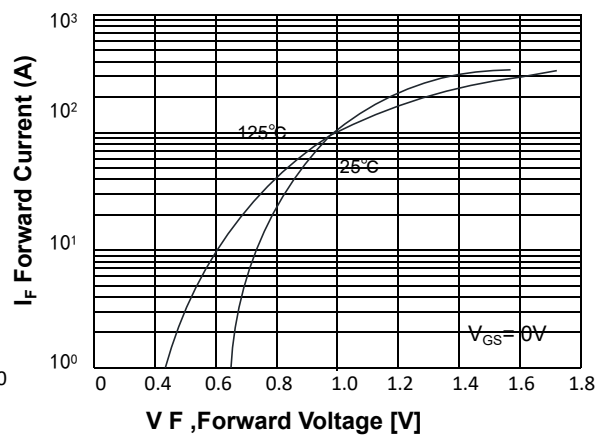
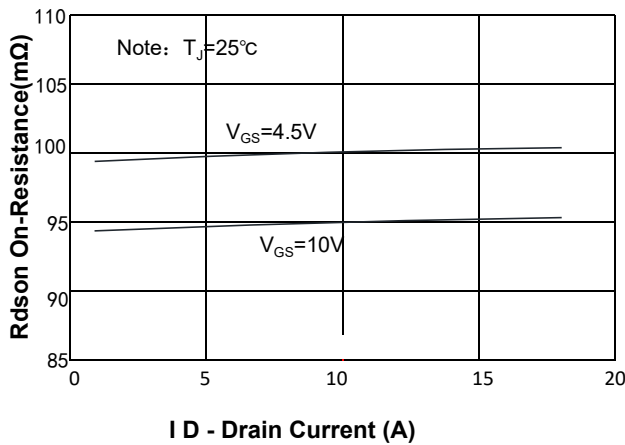
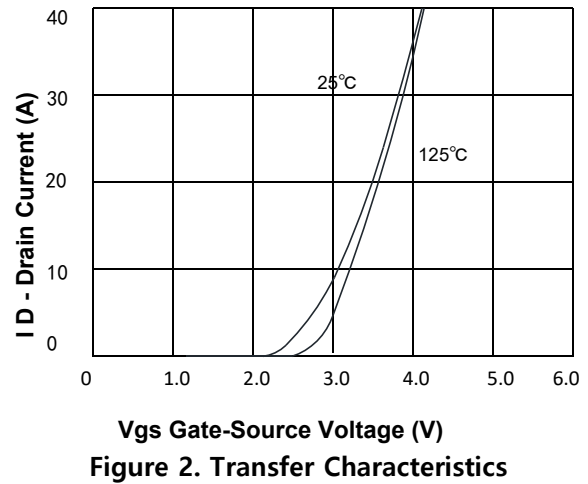
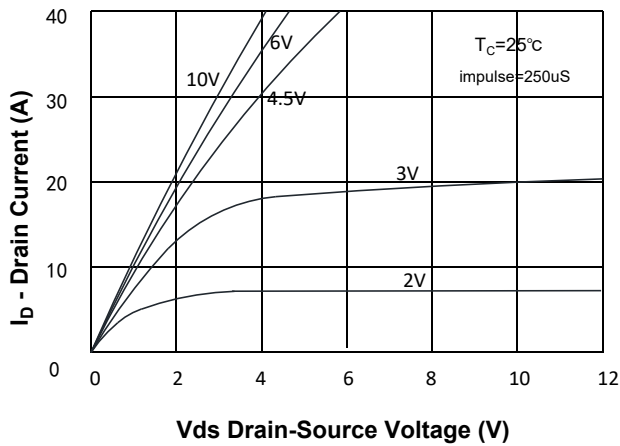
**Electrical characteristics (Ta=25°C ± 3°C)**

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Static parameter						
Drain to source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}$, $I_D = 1\text{ mA}$	100			V
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\text{ }\mu\text{A}$	1.0	1.5	2.5	V
Gate-body leakage	I_{GSS}	$V_{DS} = 0\text{ V}$, $V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 100\text{ V}$, $V_{GS} = 0\text{ V}$			1	μA
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{ V}$, $I_D = 5\text{ A}$		86	108	m Ω
		$V_{GS} = 4.5\text{ V}$, $I_D = 3\text{ A}$		96	125	m Ω
Forward transconductance ⁽⁴⁾	g_{fs}	$V_{DS} = 5\text{ V}$, $I_D = 10\text{ A}$		120		S
Gate resistance	R_g	f = 1 MHz, open drain		1		Ω
Dynamic ⁽⁴⁾						
Total gate charge	Q_g	$V_{DS} = 30\text{ V}$, $I_D = 15\text{ A}$, $V_{GS} = 10\text{ V}$		18.7		nC
Gate-source charge	Q_{gs}			3.6		
Gate-drain charge	Q_{gd}			6.4		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 30\text{ V}$, $I_D = 10\text{ A}$, $V_{GS} = 10\text{ V}$, $R_{GEN} = 1.8\text{ }\Omega$		12		ns
Rise time	t_r			5.7		
Turn-off delay time	$t_{d(off)}$			29.6		
Fall time	t_f			4.1		
Input capacitance	C_{iss}	$V_{DS} = 25\text{ V}$, $V_{GS} = 0\text{ V}$, f = 1 MHz		650		pF
Output capacitance	C_{oss}			39		
Reverse transfer capacitance	C_{rss}			25		
Reverse Diode Characteristics(4)						
Diode forward voltage		V_{SD}	$V_{GS} = 0\text{ V}$, $I_F = 10\text{ A}$		1.1	V
Maximum Continuous Drain-Source Diode Forward Current		I_S			15	A

Notes

- (1) Package limited.
- (2) Pulse width limited by maximum junction temperature.
- (3) $V_{DS} = 30\text{ V}$, $V_{GS} = 10\text{ V}$, $L = 0.5\text{ mH}$.
- (4) Guaranteed by design, not subject to production testing.

Electrical characteristics diagrams



Electrical characteristics diagrams

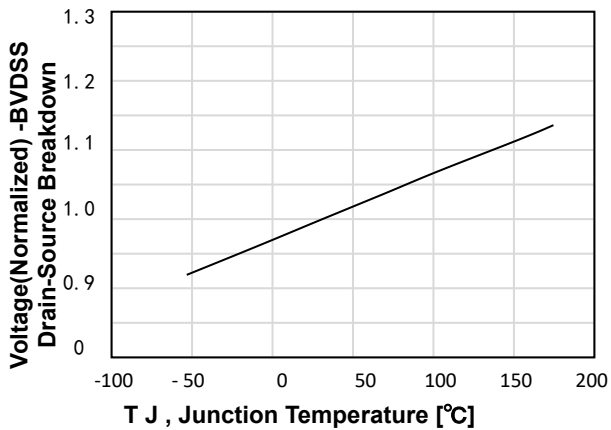


Figure 7. Breakdown Voltage Variation vs Temperature

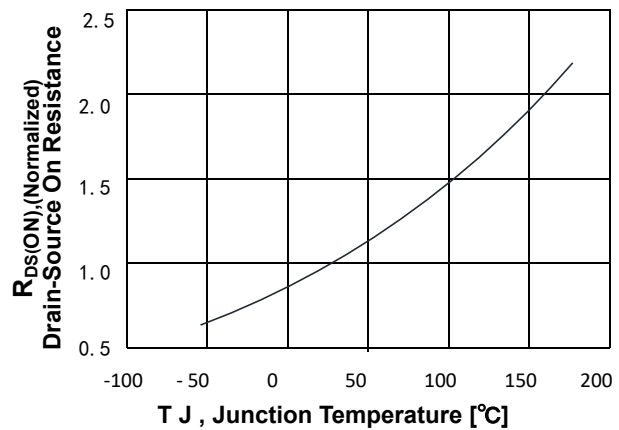


Figure 8. On-Resistance Variation vs Temperature

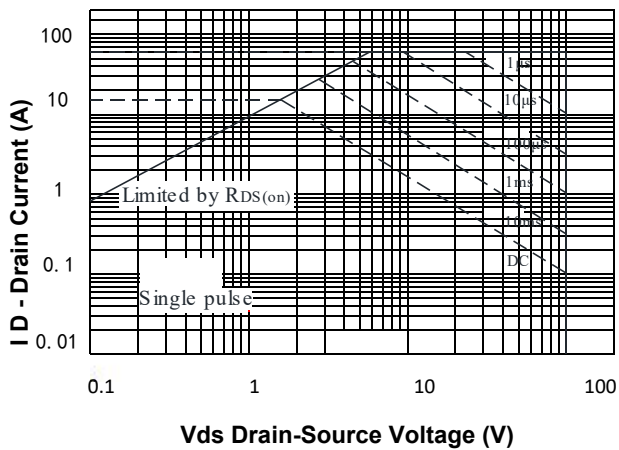


Figure 9. Maximum Safe Operating Area

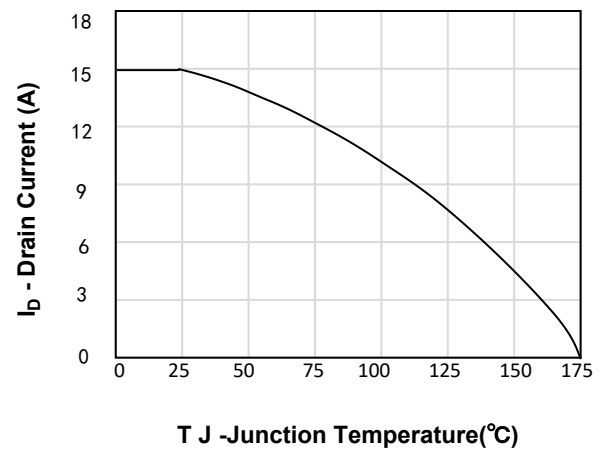


Figure 10. Maximum Continuous Drain Current vs Temperature

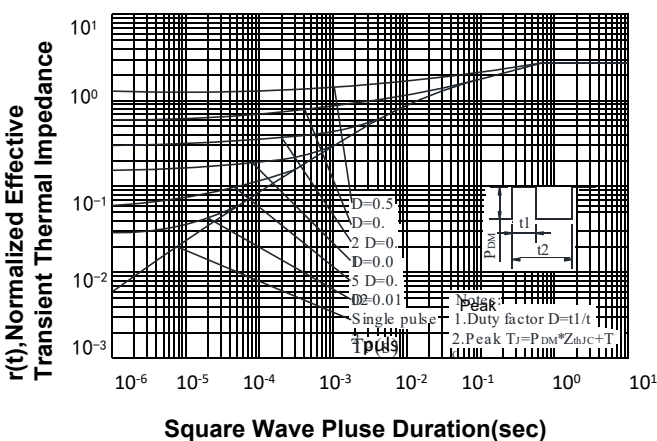


Figure 11. Transient Thermal Response Curve

Test Circuits & Waveforms

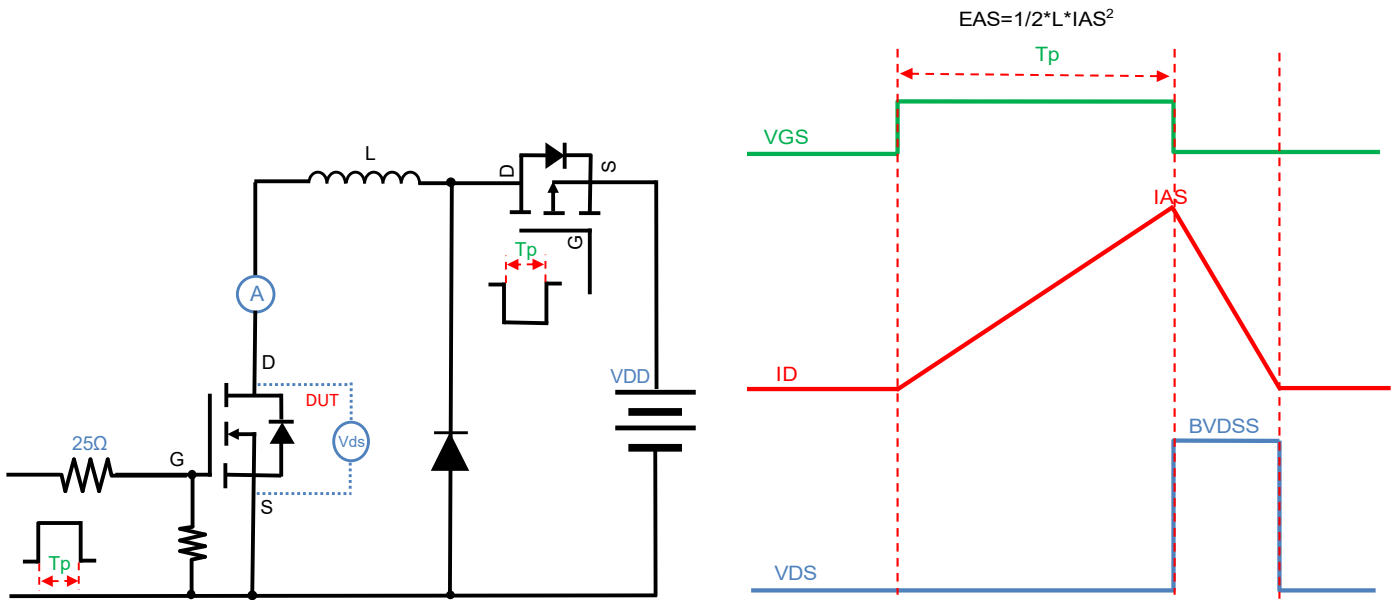


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

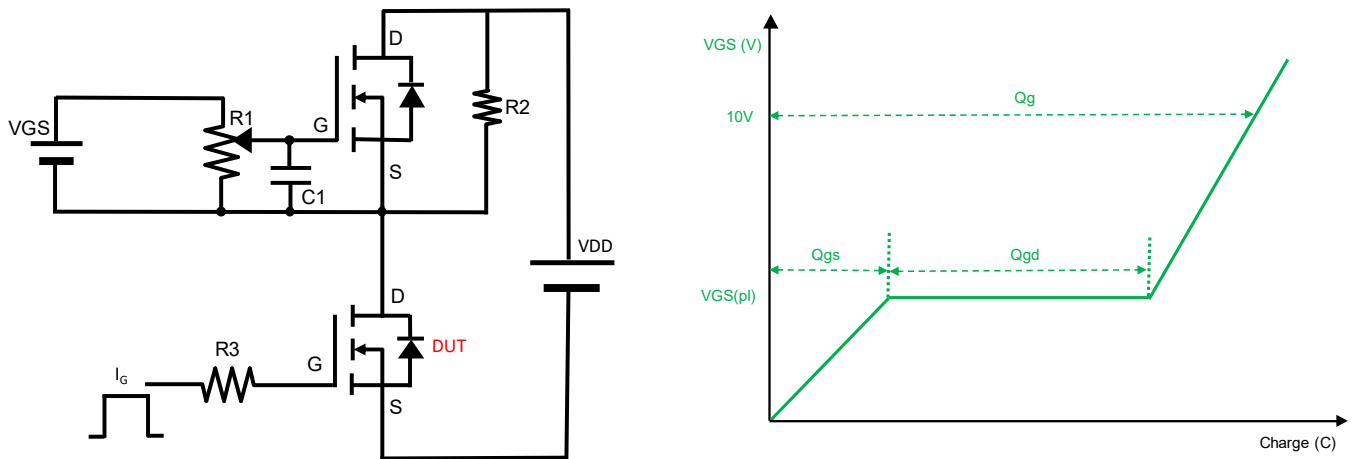


Figure B. Gate Charge Test Circuit & Waveform

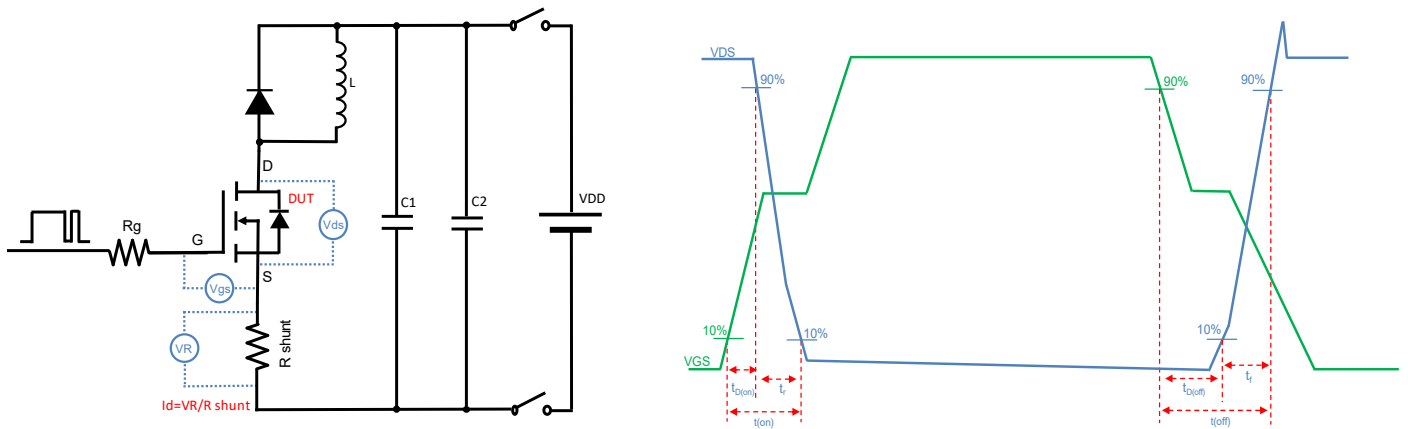
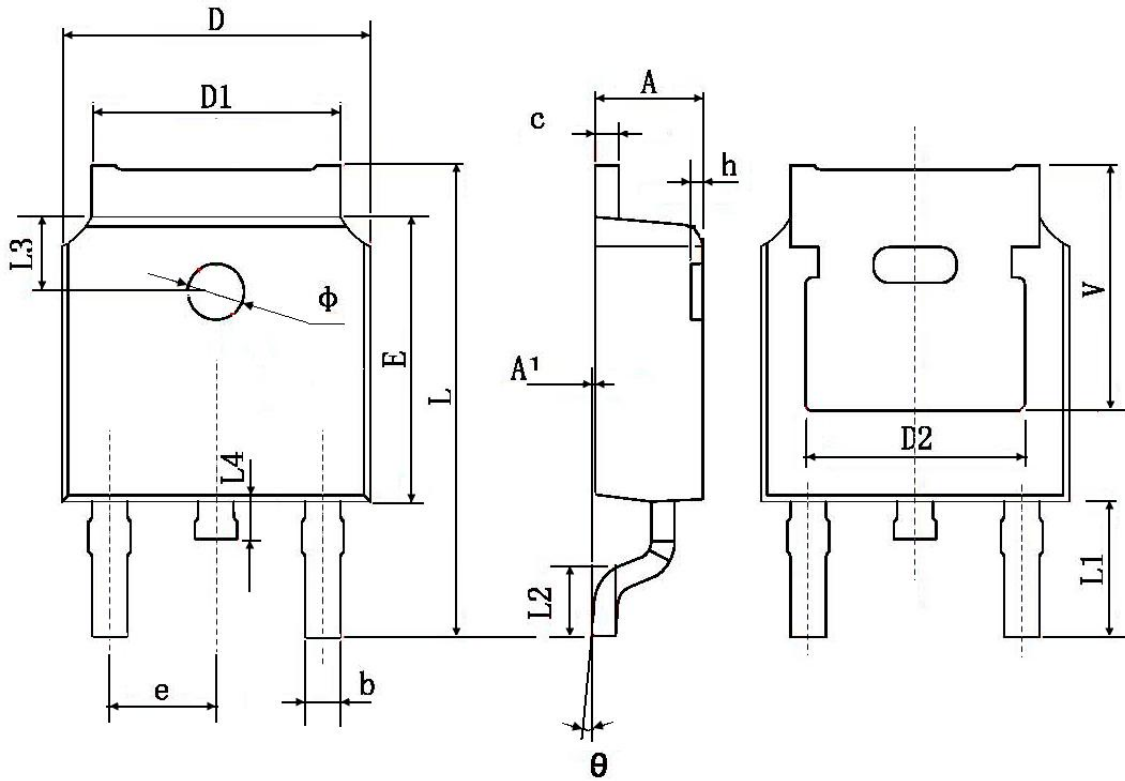


Figure C. Resistive Switching Test Circuit & Waveform

Package outline dimensions: TO-252



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	

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