WGEN26V60

Features:

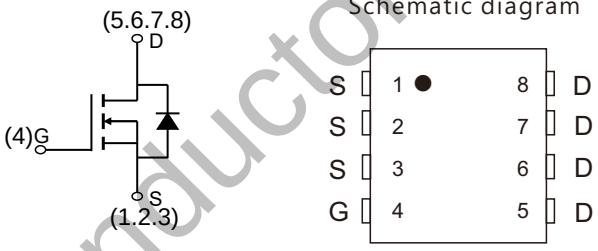
- ☐ Advanced Trench Technology
- ☐ Unrivalled Gate Charge :Qg= 29nC (Typ.).
- ☐ BVDSS=60V,I_D=20A
- ☐ R_{DS}(on) : 30m Ω (Typ.) @V_G=10V
- ☐ 100% Avalanche Tested

PDFN3*3

RoHS COMPLIANT



Schematic diagram



Absolute Maximum Ratings (@ T_C = 25°C unless otherwise specified)

Symbol	Parameter		Value	Unit
V_{DS}	Drain-to-Source Voltage		60	V
V_{GS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25°C	20	A
		T_C = 100°C	12	
I_{DM}	Pulsed Drain Current (1)		Refer to Fig.4	A
E_{AS}	Single Pulsed Avalanche Energy (2)		24	mJ
P_D	Power Dissipation	T_C = 25°C	37	W
		T_C = 100°C	15	
T_J, T_{STG}	Junction & Storage Temperature Range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Max	Unit
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient(3)	42	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case	3.4	

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Electrical Characteristics (T_J = 25°C unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	I_D = 250μA, V_{GS} = 0V	60	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 60V, V_{GS} = 0V	-	-	1.0	μA
I_{GSS}	Gate-Body Leakage Current	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.6	2.5	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance(4)	V_{GS} = 10V, I_D = 10A	-	30	38	mΩ
		V_{GS} = 4.5V, I_D = 5A	-	34	43	mΩ
Dynamic Characteristics						
R_g	Gate Resistance	f = 1MHz	-	1.2	-	Ω
C_{iss}	Input Capacitance	V_{GS} = 0V, V_{DS} = 30V, f = 1MHz	848	1220	1602	pF
C_{oss}	Output Capacitance		40	68	76	pF
C_{rss}	Reverse Transfer Capacitance		34	49	63	pF
Q_g	Total Gate Charge	V_{GS} = 0 to 10V, V_{DS} = 30V, I_D = 10A	17	29	38	nC
Q_{gs}	Gate Source Charge		-	4.5	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	4.5	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-On DelayTime	V_{GS} = 10V, V_{DD} = 30V, I_D= 10A, R_{GEN} = 3Ω	-	6.7	-	ns
t_r	Turn-On Rise Time		-	15	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	24	-	ns
t_f	Turn-Off Fall Time		-	2.7	-	ns
Body Diode Characteristics						
I_S	Maximum Continuous Body Diode Forward Current		-	-	20	A
I_{SM}	Maximum Pulsed Body Diode Forward Current		-	-	79	A
V_{SD}	Body Diode Forward Voltage	V_{GS} = 0V, I_S = 10A	-		1.2	V
trr	Body Diode Reverse Recovery Time	I_F = 10A, di/dt = 100A/us	13	19	25	ns
Qrr	Body Diode Reverse Recovery Charge		-	19	-	nC

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

2. E_{AS} condition: Starting T_J=25C, V_{DD}=30V, V_{GS}=10V, R_G=25ohm, L=0.5mH, I_{AS}=10A, V_{DD}=0V during time in avalanche.

3. $R_{\theta JA}$ is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB.

4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

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Typical Performance Characteristics

Figure 1: Power De-rating

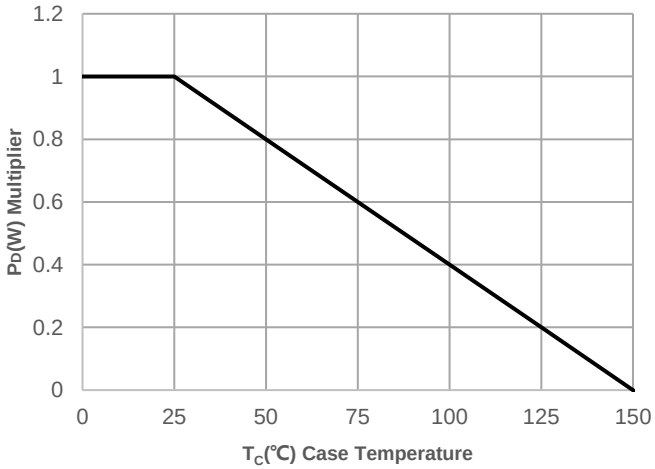


Figure 2: Current De-rating

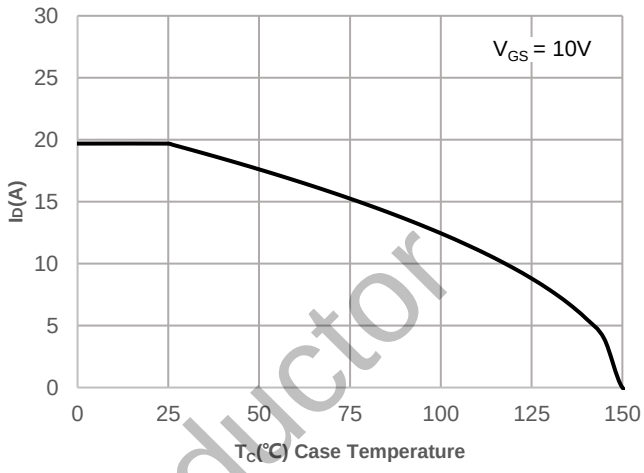


Figure 3: Normalized Maximum Transient Thermal Impedance

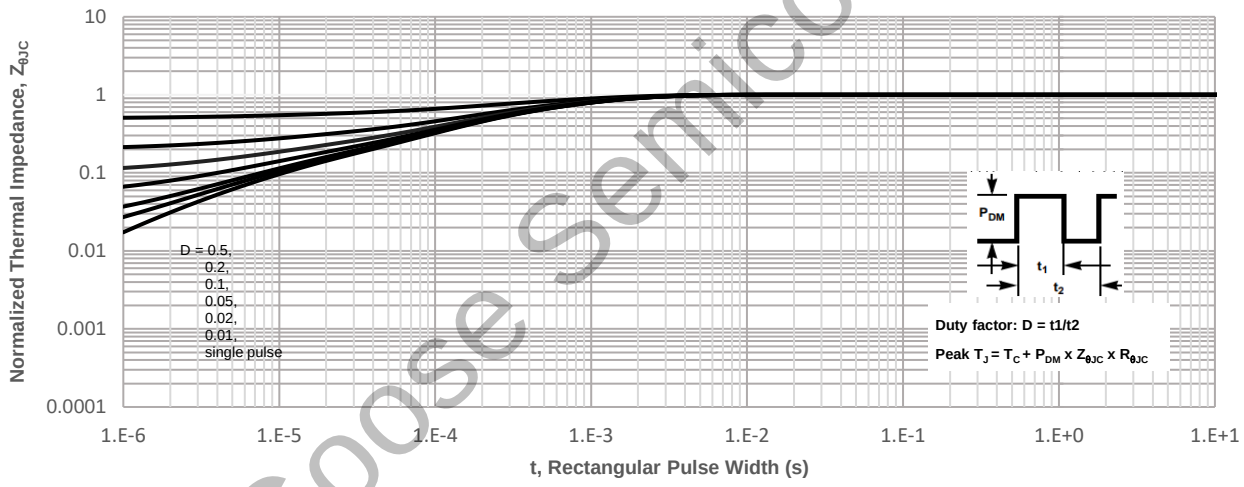
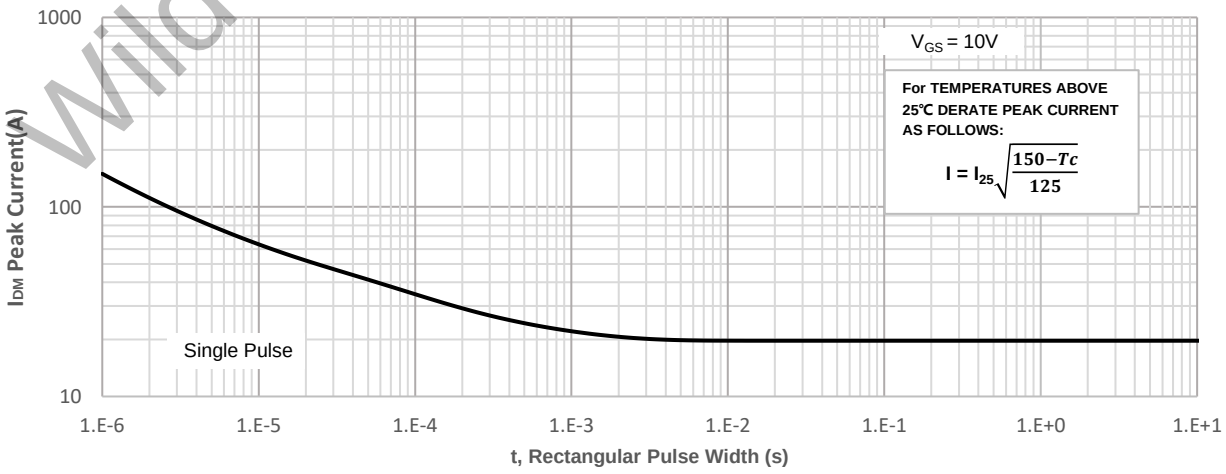


Figure 4: Peak Current Capacity



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Typical Performance Characteristics

Figure 5: Output Characteristics

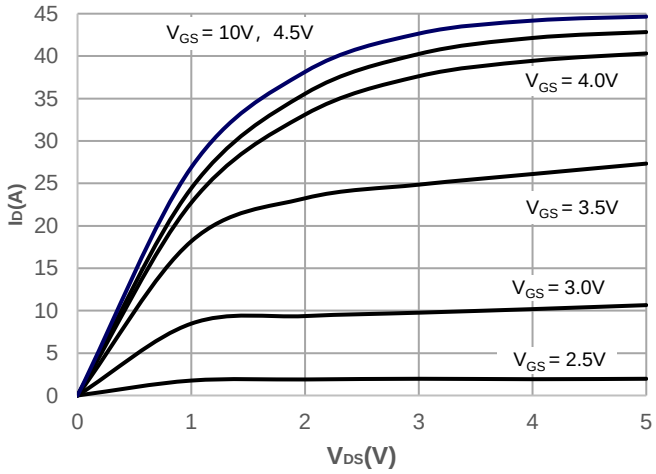


Figure 6: Typical Transfer Characteristics

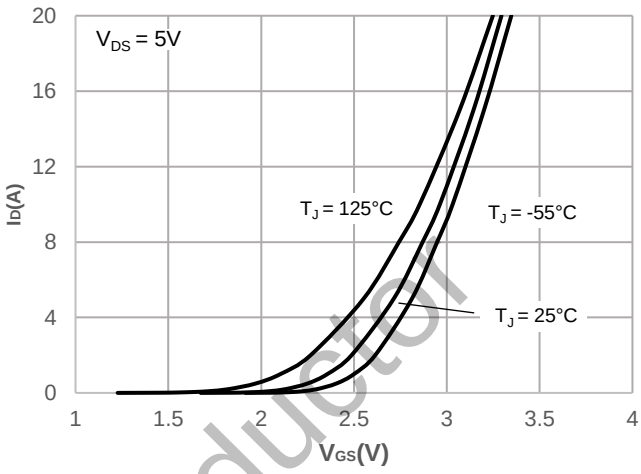


Figure 7: On-resistance vs. Drain Current

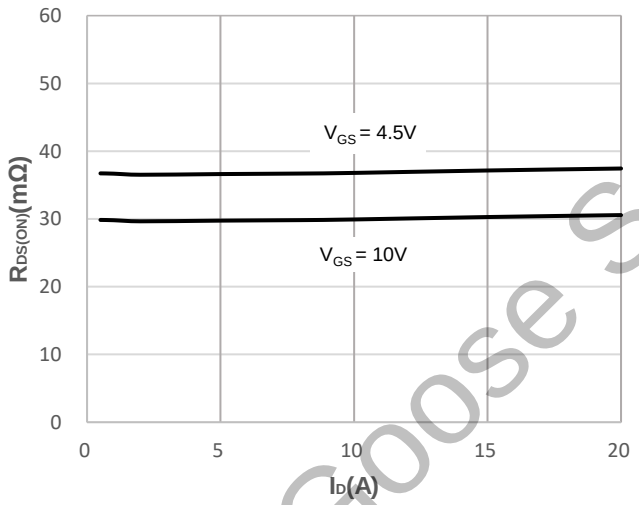


Figure 8: Body Diode Characteristics

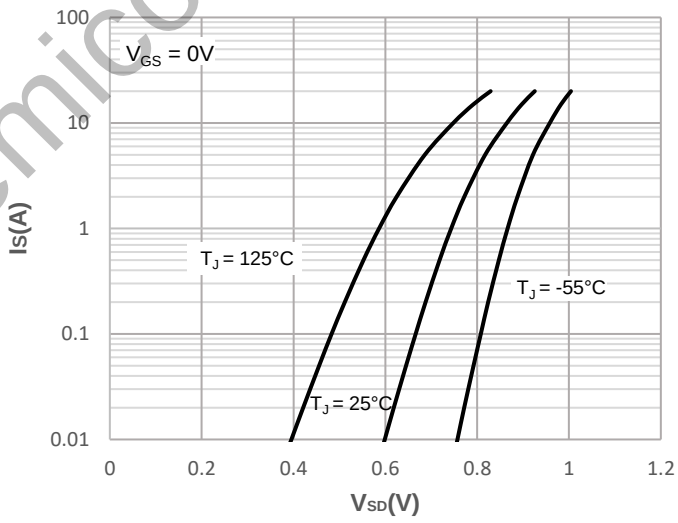


Figure 9: Gate Charge Characteristics

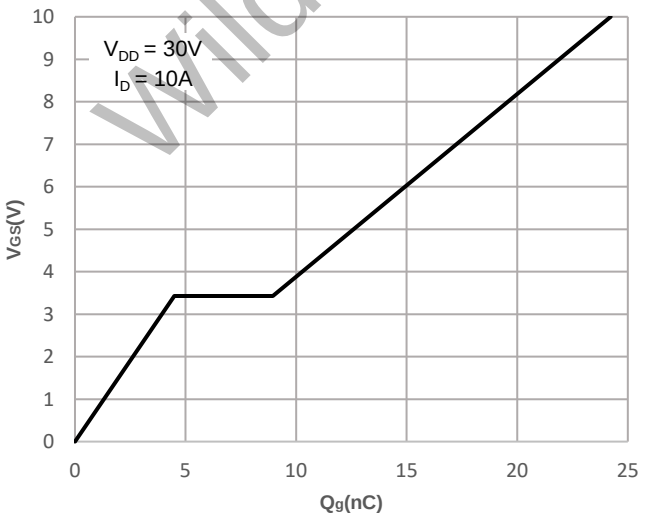
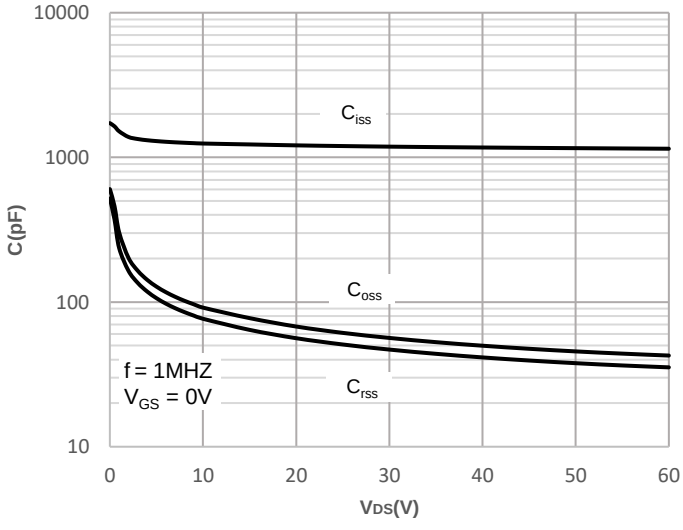


Figure 10: Capacitance Characteristics



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Typical Performance Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

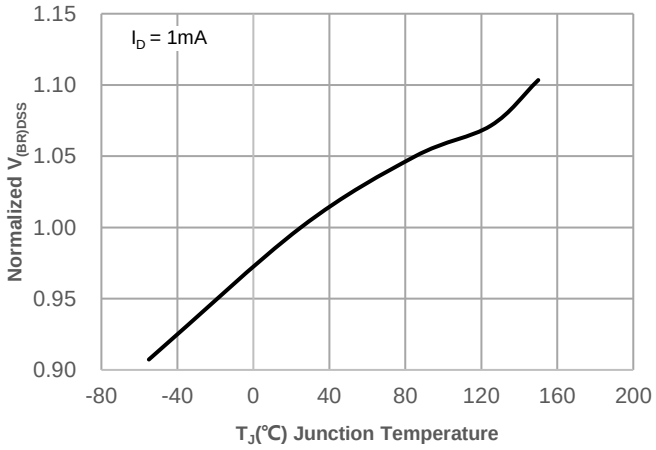


Figure 12: Normalized on Resistance vs. Junction Temperature

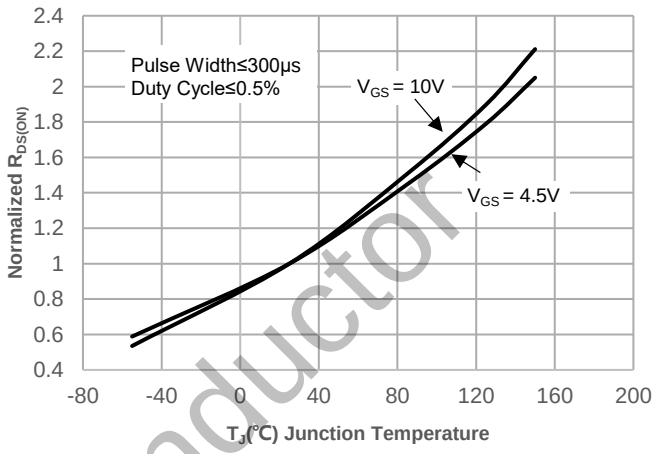


Figure 13: Normalized Threshold Voltage vs. Junction Temperature

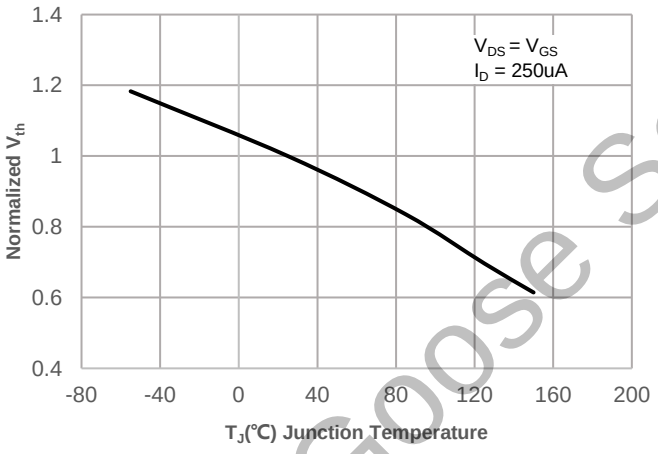


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

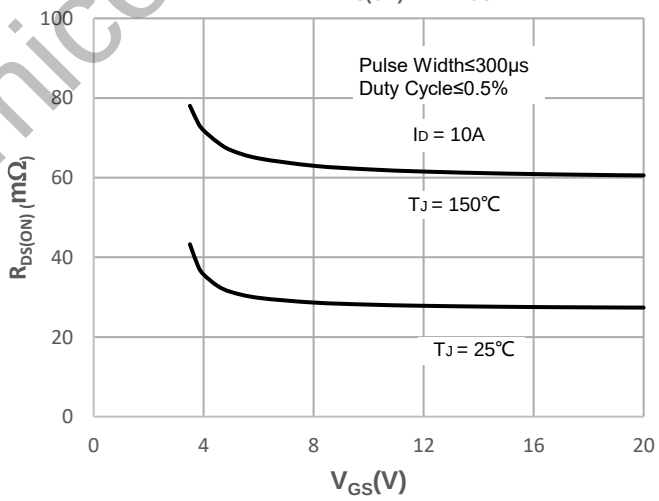
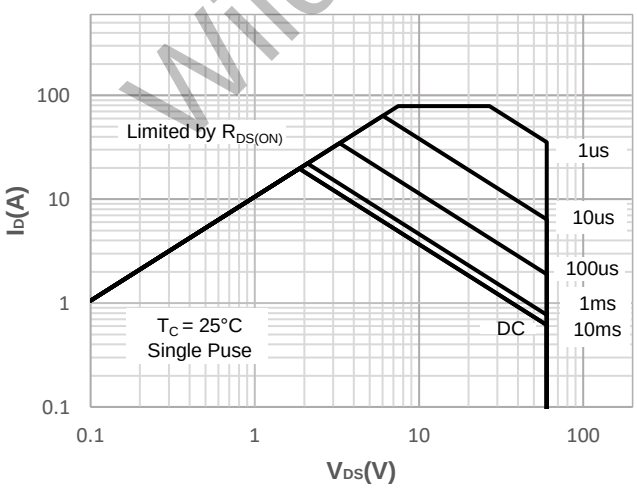


Figure 15: Maximum Safe Operating Area



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Test Circuit

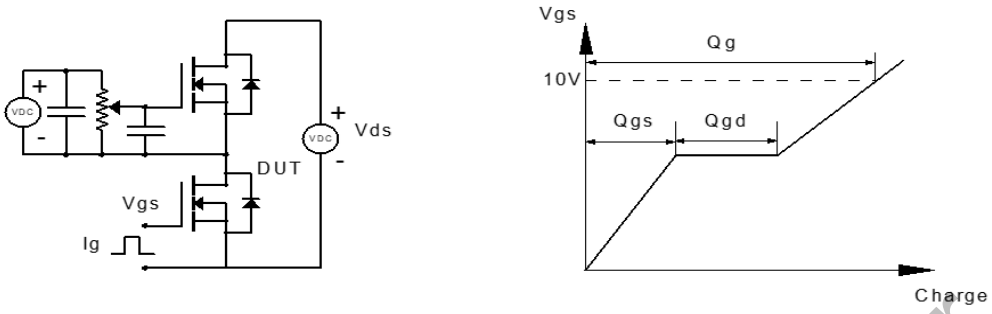


Figure 1: Gate Charge Test Circuit & Waveform

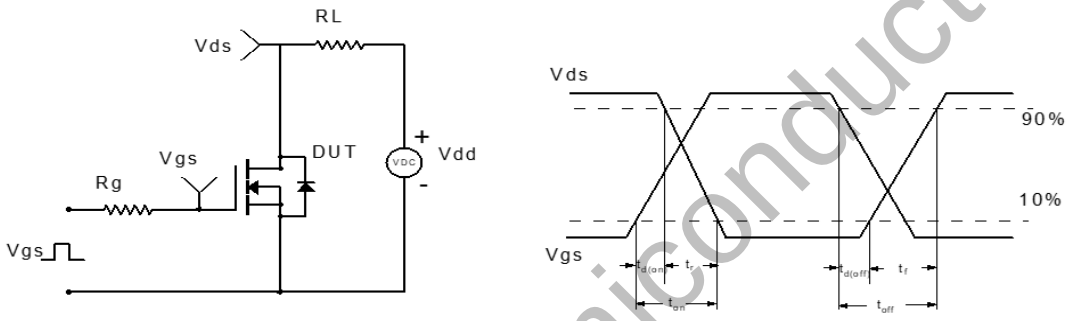


Figure 2: Resistive Switching Test Circuit & Waveform

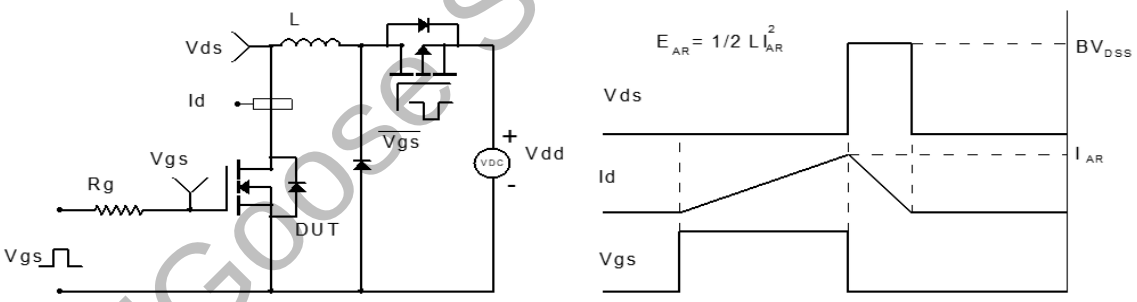


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

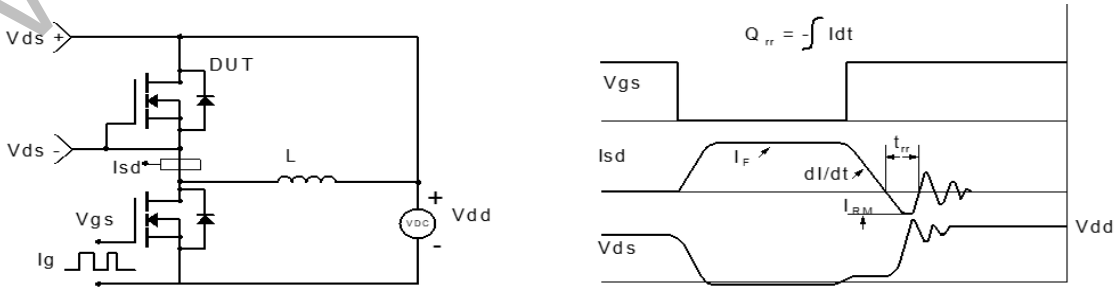


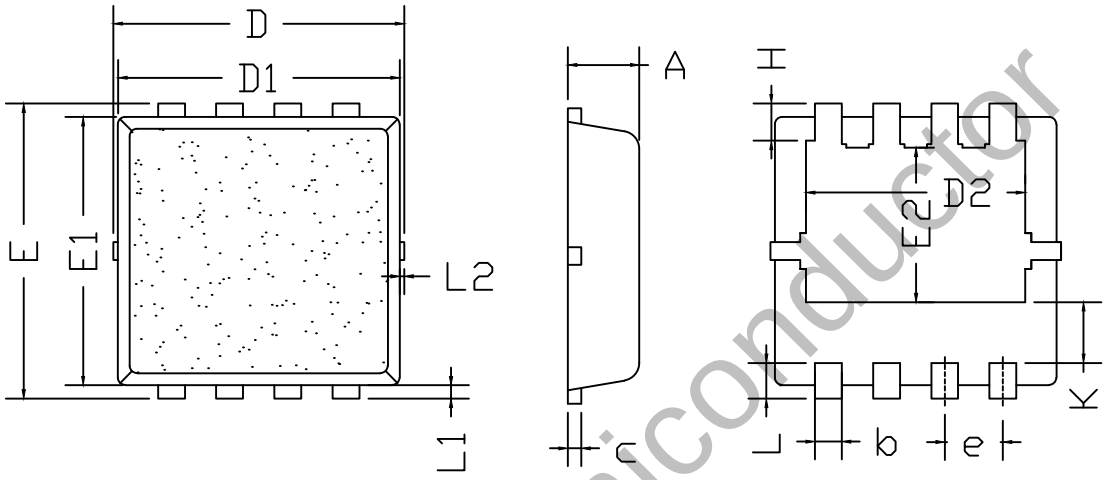
Figure 4: Diode Recovery Test Circuit & Waveform

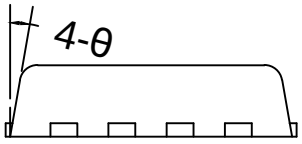
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Package Dimension

PDFN3*3

Unit:mm





SYMBOL	mm		
	MIN	NOM	MAX
*A	0.70	0.80	0.90
*b	0.25	0.30	0.35
*c	0.20	0.25	0.30
D	3.25BSC		
*D1	3.05	3.15	3.25
D2	2.35	2.45	2.55
*e	0.55	0.65	0.75
E	3.30BSC		
*E1	2.90	3.00	3.10
E2	1.64	1.74	1.84
H	0.32	0.42	0.52
K	0.58	0.68	0.78
L	0.30	0.40	0.50
L1	0.10	0.15	0.20
L2	–	–	0.12
θ	8°	10°	12°

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