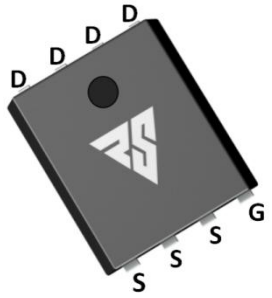
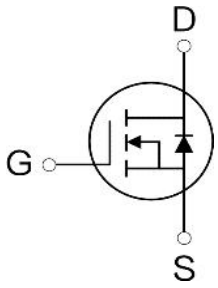
ID	R_{DS}(ON)(Typ)	VDSS
115A	2.6mΩ	30V





Applications:
- Load Switch
- PWM Applications
- Power Managment

Features:
- Fast switching speed
- 100% avalanche tested
- Improved dv/dt capability

Ordering Information

Part Number	Package	Marking	Packing	Qty
RS30N115G	DFN5*6	RS30N115G	Tape&reel	5000 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RS30N115G	Units
VDSS	Drain-to-Source Voltage	30	V
ID	Continuous Drain Current TC=25℃	115	A
ID	Continuous Drain Current TC=100℃	88	
IDM	Pulsed Drain Current (Note*1)	460	
PD	Power Dissipation TC=25℃	104	W
	Power Dissipation TC=100℃	42	
VGS	Gate- to- Source Voltage	±20	V
EAS	Single Pulse Avalanche Engergy J=25C, VDD=15V, VGS=10V, RG=25ohm, L=0.5mH, IAS=24.5A, VDD=0V	150	mJ
TL TPKG	Maximum Temperature for Soldering	300	℃
	Leadsat0.063in(1.6mm)fromCasefor10seconds PackageBodyfor10seconds	260	
TJ and TSTG	Operating Junction and Storage Temperature Range	-55 to 150	

* Drain Current Limited by Maximum Junction Temperature

Caution: Stresses greater than those listed in the“ Absolute Maximum Ratings” Table may cause permanent damage to the device.

Thermal Resistance

Symbol	Parameter	RS30N115G	Units	Test Conditions
RθJA	Junction-to-Ambient	37	℃/ W	RθJA is measured with the device mounted on a 1inch2 pad of 2oz copper FR4 PCB
RθJC	Junction-to-Case	1.2	℃/ W	1 cubic foot chamber,free air.

OFF Characteristics TJ= 25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain- to- source Breakdown Voltage	30	--	--	V	VGS=0V ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=30V VGS=0V
IGSS	Gate- to- Source Forward Leakage	--	--	100	nA	VGS=20V VDS=0V
	Gate- to- Source Reverse Leakage	--	--	-100		VGS=-20V VDS=0V

ON Characteristics TJ=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain- to- Source On-Resistance(Note*2)	--	2.6	3.4	mΩ	VGS=10V ID=30A
		--	4.8	6.3	mΩ	VGS=4.5V ID=20A
VGS(TH)	Gate Threshold Voltage	1.1	1.5	2.5	V	VGS=VDS ID=250μA

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
td(ON)	Turn- on Delay Time	--	11	--	nS	VDS=15V ID=30A RG=3Ω VGS=10V
trise	Rise Time	--	29	--		
td(OFF)	Turn- OFF Delay Time	--	47	--		
tfall	Fall Time	--	19	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	3090	--	pF	VGS= 0V VDS=15V f=1.0MHz
Coss	Output Capacitance	--	375	--		
Crss	Reverse Transfer Capacitance	--	303	--		
Qg	Total Gate Charge	--	58	--	nC	VDS= 10V ID=30A VGS=15V
Qgs	Gate- to- Source Charge	--	12	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	13	--		
RG	Gate Resistance	--	2.4	--	Ω	

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	115	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	460	A	
VSD	Diode Forward Voltage	--	--	1.2	V	IS=30A VGS=0V
trr	Body Diode Reverse Recovery Time	11	16	21	nS	F = 20A di/dt = 100A/us
Qrr	Body Diode Reverse Recovery Charge	--	6.7	--	nC	

Notes:

* 1. Repetitive rating, pulse width limited by maximum junction temperature.
* 2. Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 0.5%

Typical Feature Curve

Figure 1: Power De-rating

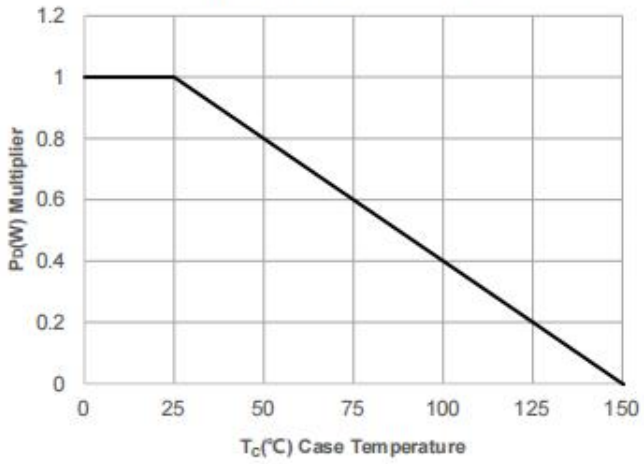


Figure 2: Current De-rating

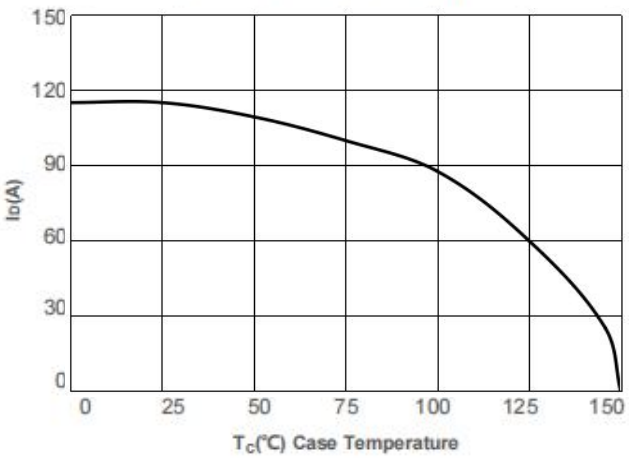


Figure 3: Normalized Maximum Transient Thermal Impedance

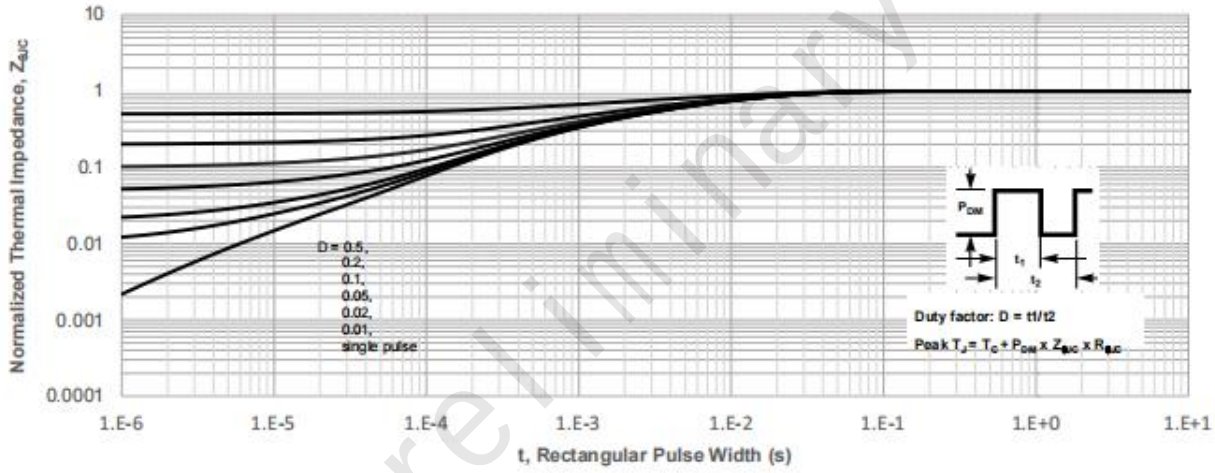
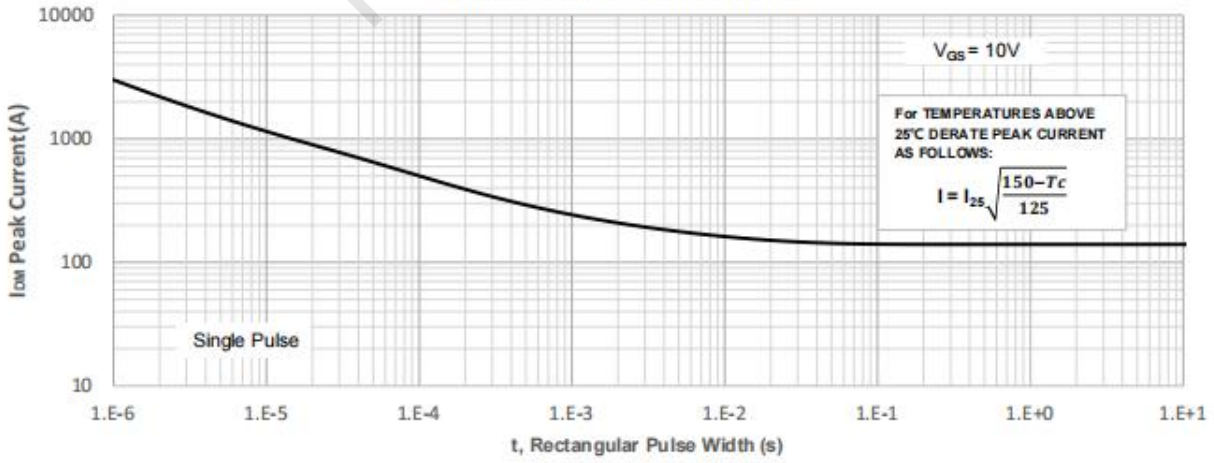


Figure 4: Peak Current Capacity



Typical Feature Curve

Figure 5: Output Characteristics

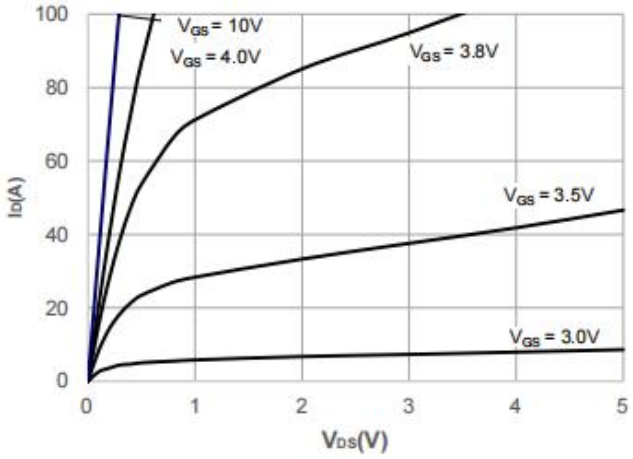


Figure 6: Typical Transfer Characteristics

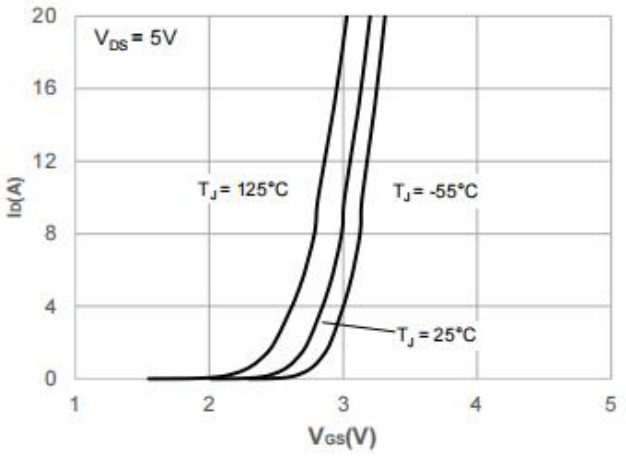


Figure 7: On-resistance vs. Drain Current

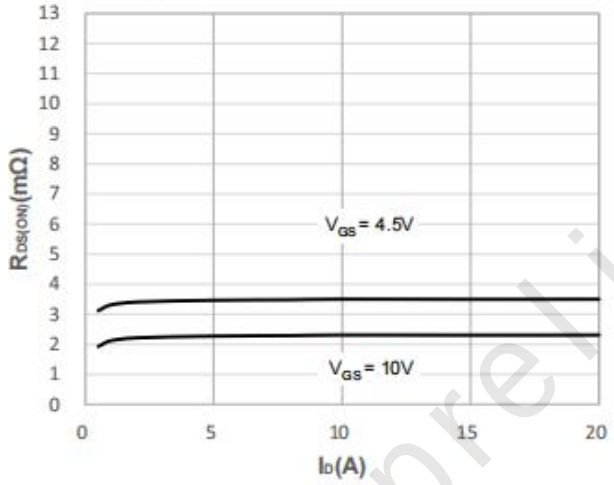


Figure 8: Body Diode Characteristics

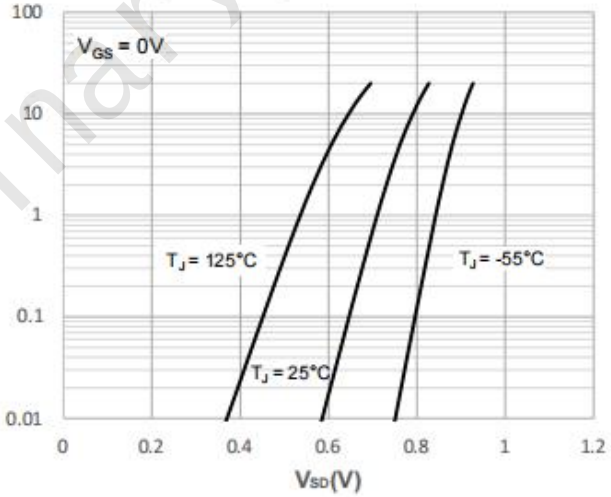


Figure 9: Gate Charge Characteristics

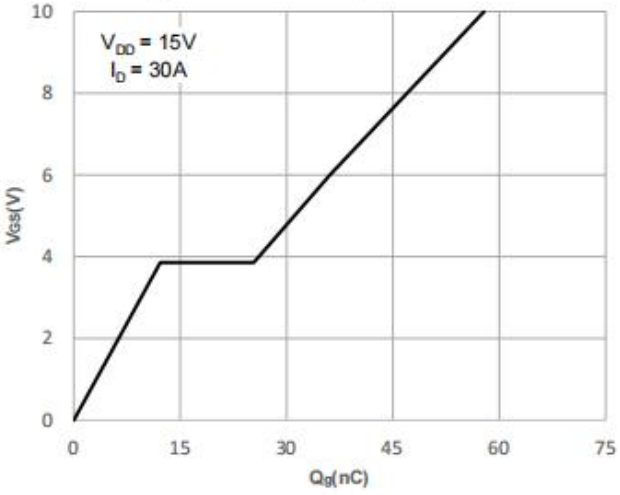


Figure 10: Capacitance Characteristics

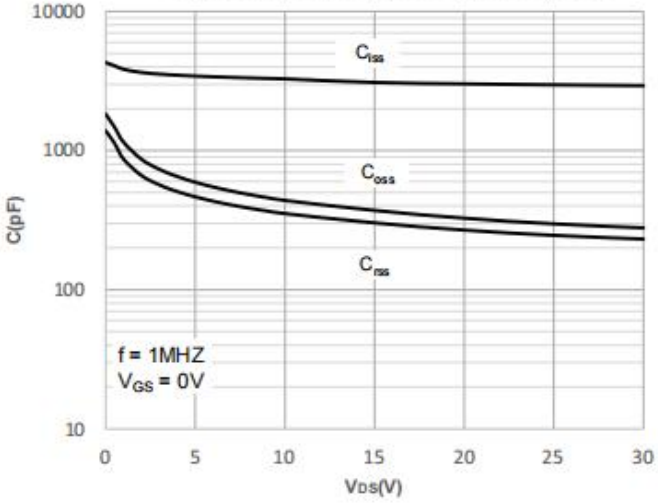


Figure 11: Normalized Breakdown voltage vs. Junction Temperature

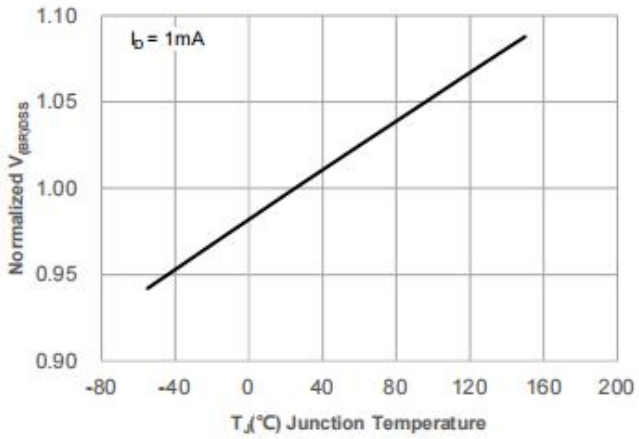


Figure 12: Normalized on Resistance vs. Junction Temperature

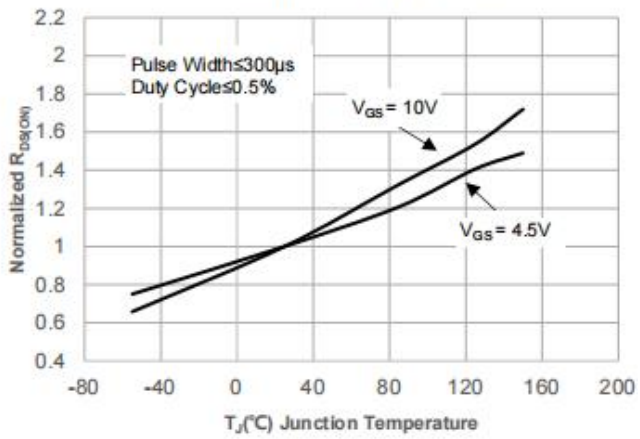


Figure 13: Normalized Threshold Voltage vs. Junction Temperature

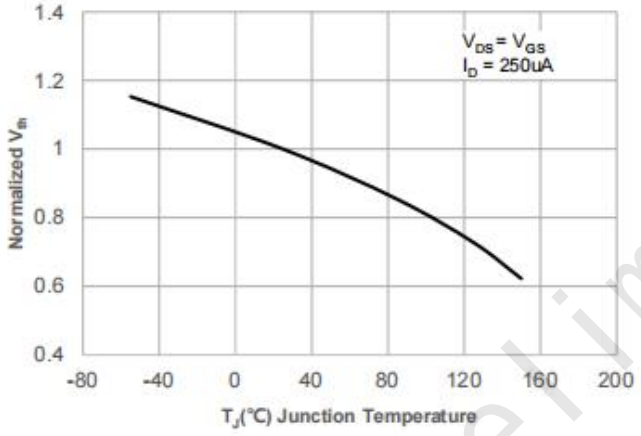


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

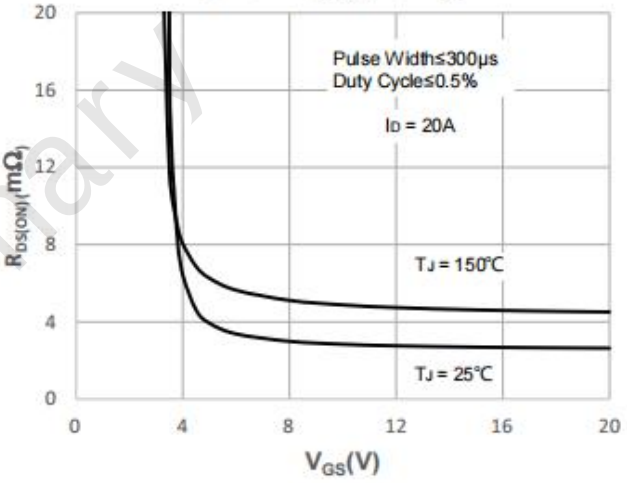
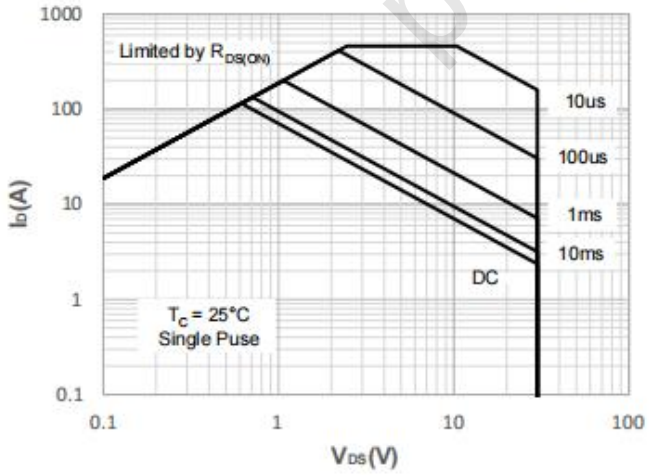


Figure 15: Maximum Safe Operating Area



Test Circuits and Waveforms

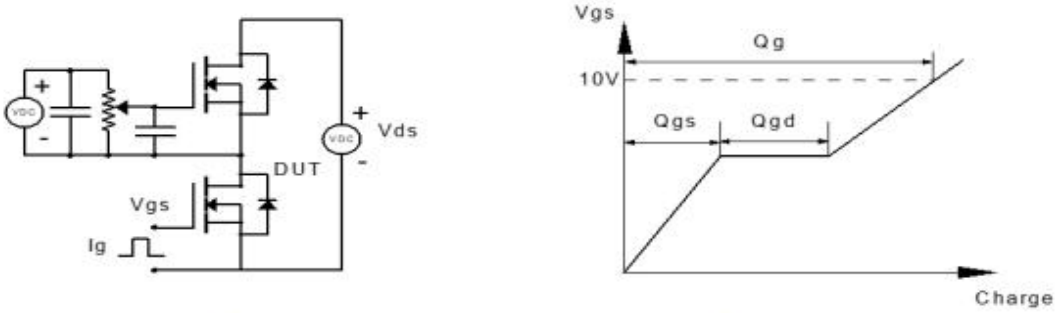


Figure 1: Gate Charge Test Circuit & Waveform

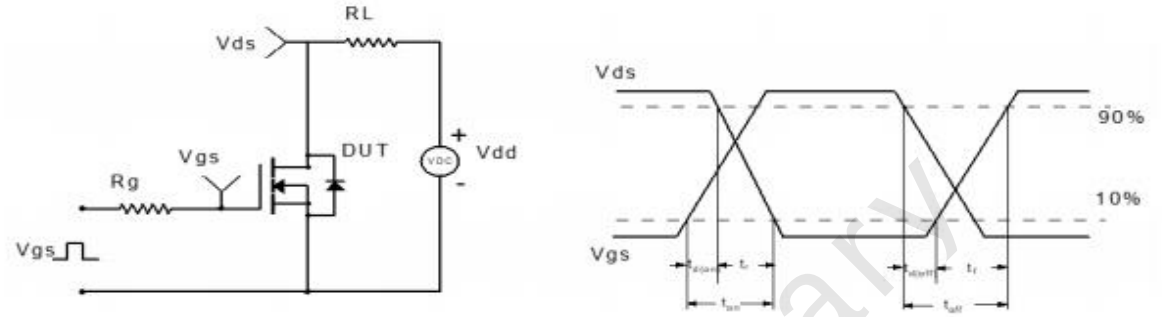


Figure 2: Resistive Switching Test Circuit & Waveform

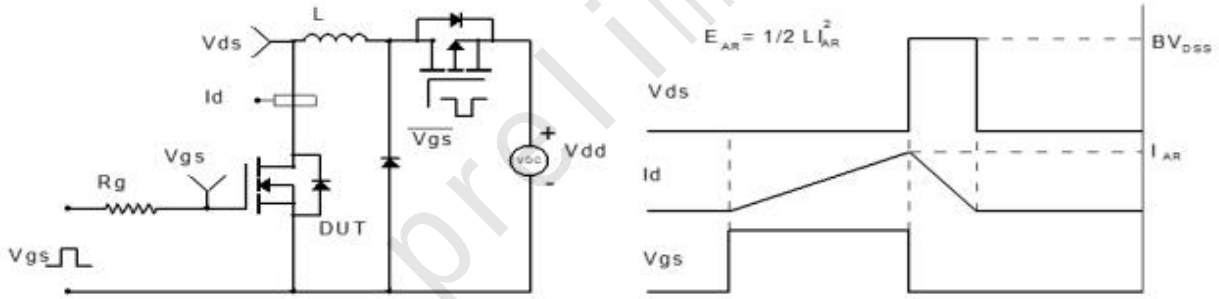


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

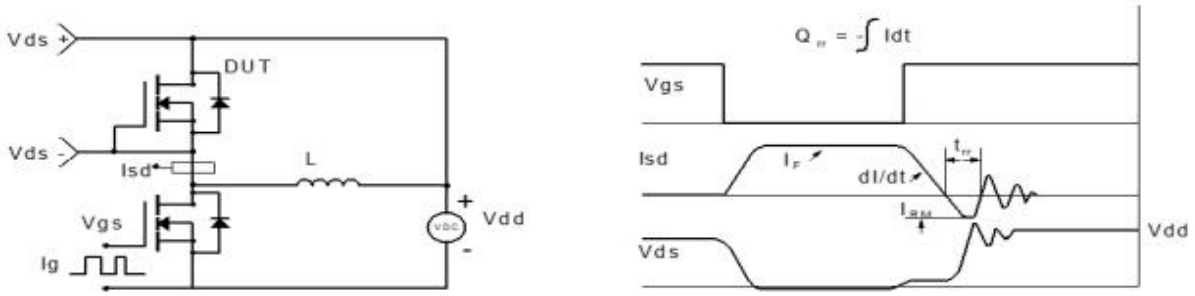
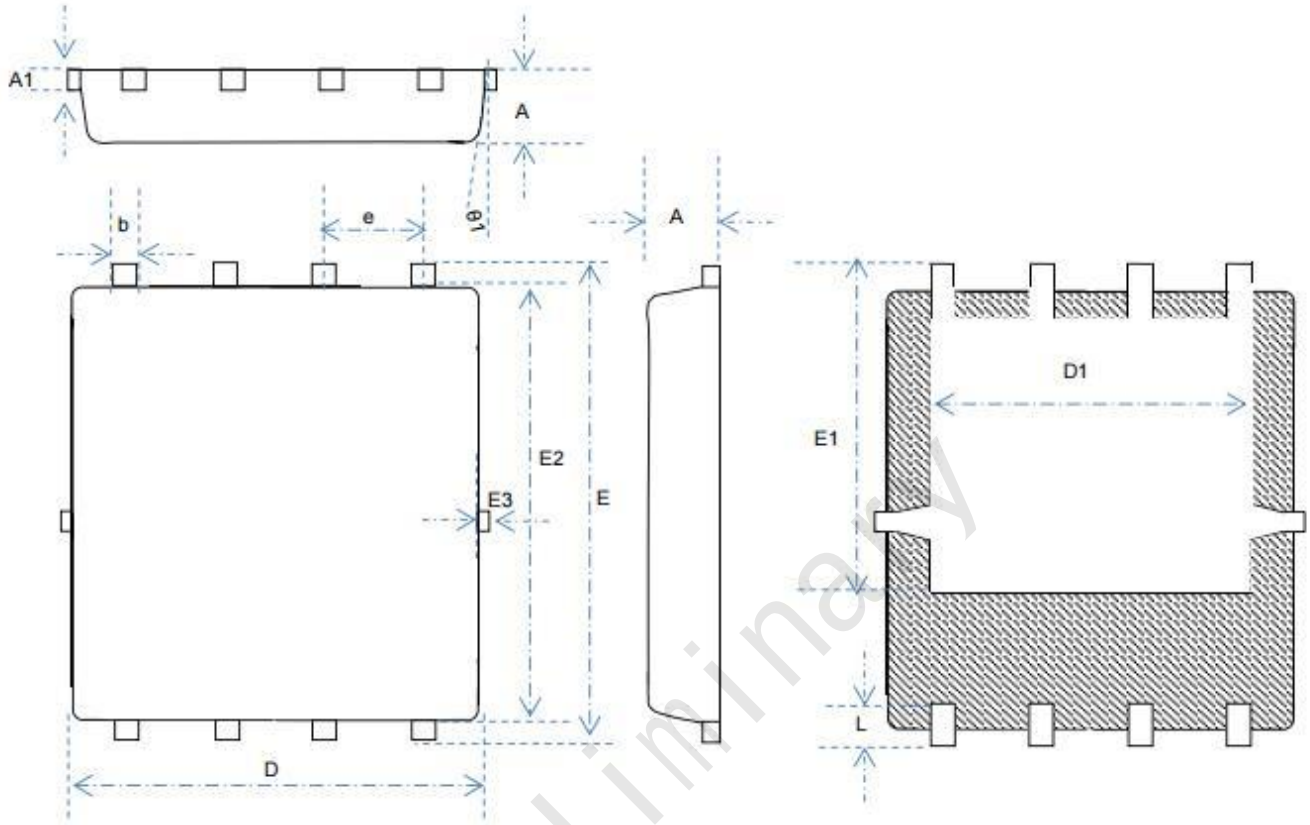


Figure 4: Diode Recovery Test Circuit & Waveform

Package outline drawing(DFN5*6 Unit: mm)

DFN 5*6 OUTLINE



SYMBOL	Mechanical Dimensions/mm			SYMBOL	Mechanical Dimensions/mm		
	MIN	NOM	MAX		MIN	NOM	MAX
A	0.85	0.95	1.05	D	5.10	5.20	5.30
A1	0.254 REF			e	1.270 TYPE		
b	-	0.30	-	D1	3.90	4.0	4.10
E	5.85	6.05	6.25	L	0.54	0.64	0.74
E1	3.90	4.10	4.30				
E2	5.45	5.55	5.65	θ1	8°	10°	12°
E3	-	-	0.15				

NAME	DFN 5*6 OUTLINE	UNIT	mm	DESIGNED	Shawn	THIRD ANGLE SYSTEM
DWGNO		PAGE	1 OF 1	CHECKED		
VERSION	Ver1.0	ISSUE DATE		APPROVED		

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