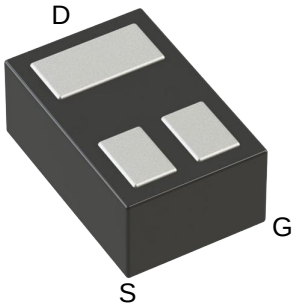
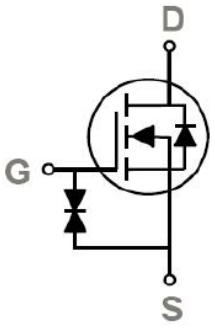
Description：

This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.





Features：

1) V_{DS}=20V,I_D=0.7A,$R_{DS(ON)}$<350mΩ @V_{GS}=4.5V（Typ：270mΩ）
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.6)
6) ESD Protection
7) MSL3

Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
I3136A	SC	DFN1006-3	10000 pcs/Reel

Absolute Maximum Ratings：（T_A=25℃ unless otherwise noted）

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±10	V
I_D	Continuous Drain Current[1]	0.7	A
	Continuous Drain Current-T_A=100℃[1]	0.49	
I_{DM}	Pulsed Drain Current[2]	2.8	
P_D	Power Dissipation	0.35	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient[2]	360	℃/W

Electrical Characteristics: (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=200V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±10V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	0.4	0.6	1	V
$R_{DS(ON)}$	Drain-Source On Resistance[3]	V_{GS}=4.5V,I_D=0.5A	---	270	350	mΩ
		V_{GS}=2.5V,I_D=0.3A	---	360	470	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz	---	23	---	pF
C_{oss}	Output Capacitance		---	6	--	
C_{rss}	Reverse Transfer Capacitance		---	4	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=10V, I_D=0.5A, R_{ENG}=6Ω ,V_{GS}=4.5V	---	0.8	---	ns
t_r	Rise Time		---	1.5	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	2.2	---	ns
t_f	Fall Time		---	1.7	---	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=10V, I_D=0.5A	---	0.4	---	nC
Q_{gs}	Gate-Source Charge		---	0.04	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	0.1	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=0.5A	---	---	1.2	V
I_S	Continuous Drain Curren	V_D=V_G=0V	---	---	0.58	A
I_{SM}	Pulsed Drain Current		---	---	2.3	A

Notes:

1. Computed continuous current assumes the condition of $T_{j,Max}$ while the actual continuous current depends on the thermal & electro-mechanical application board design
2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Test Circuit

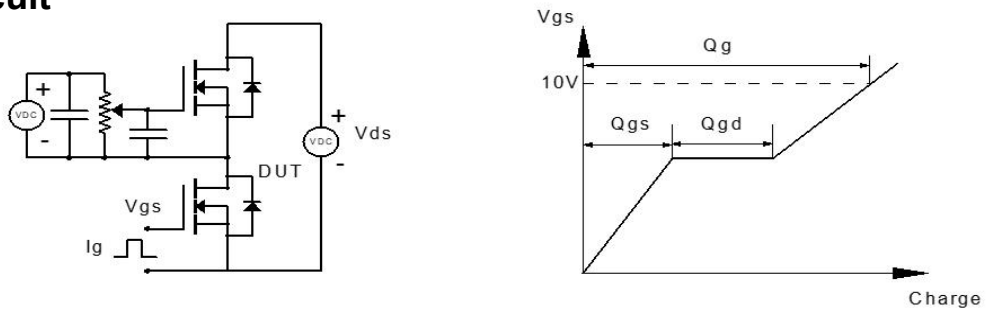


Figure 1: Gate Charge Test Circuit & Waveform

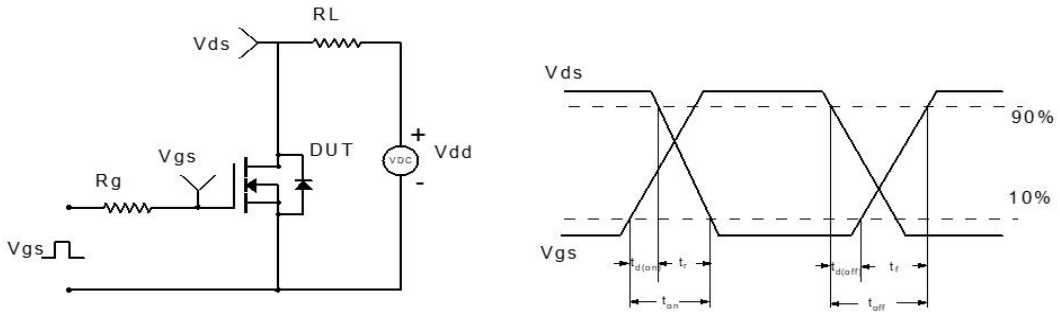


Figure 2: Resistive Switching Test Circuit & Waveform

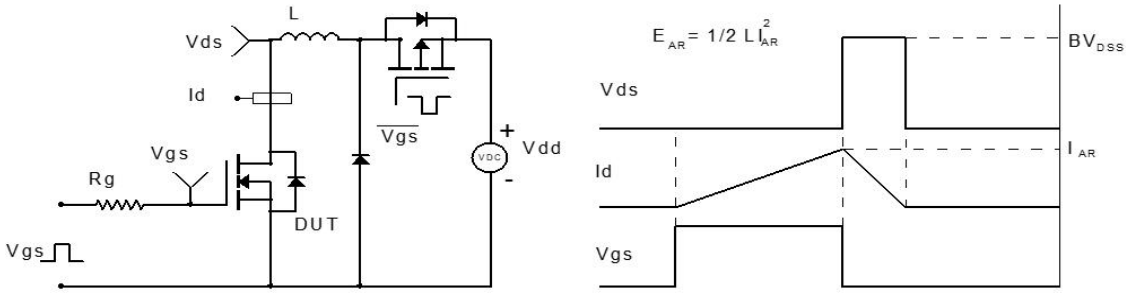


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

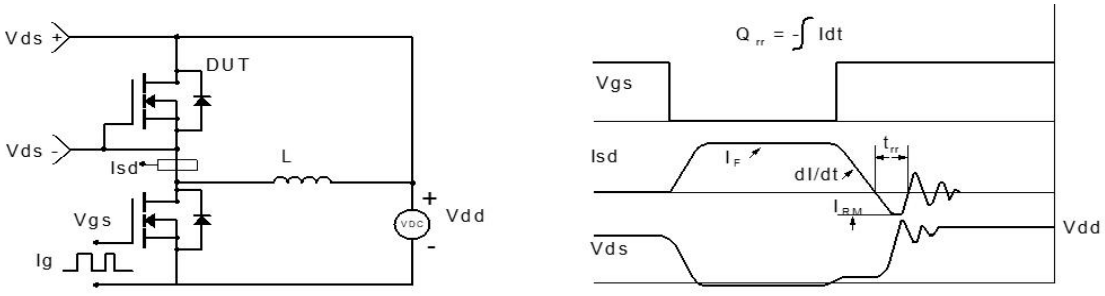
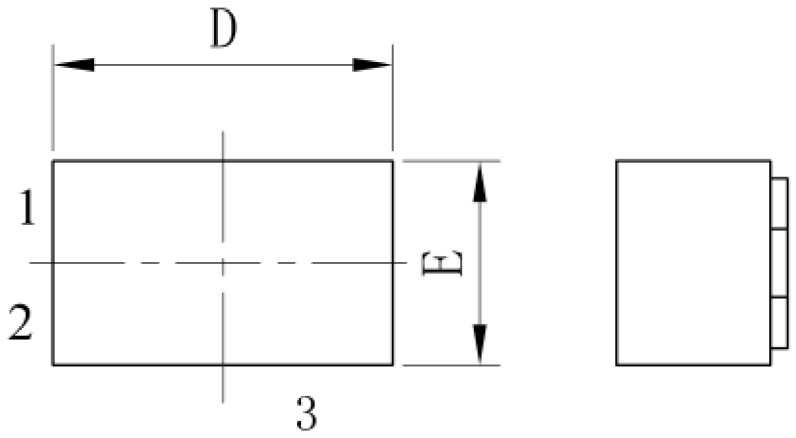
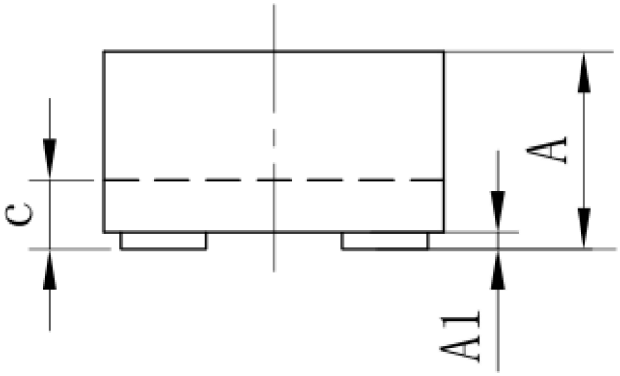


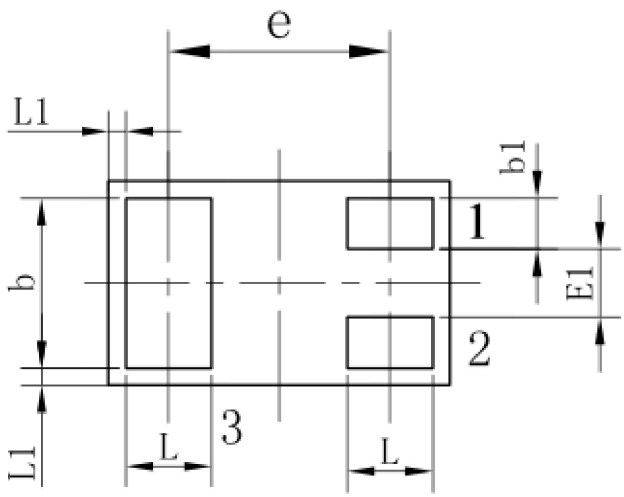
Figure 4: Diode Recovery Test Circuit & Waveform

DFN1006-3 Package Outline Data

Unit:mm







BOTTOM VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.45	0. 50	0. 55
A1	0	0.02	0. 05
b	0. 45	0.50	0. 55
b1	0. 10	0.15	0. 20
c	0. 12	0.15	0. 18
D	0. 95	1. 00	1. 05
e	0. 65BSC		
E	0. 55	0. 60	0. 65
E1	0. 15	0. 20	0. 25
L	0. 20	0.25	0. 30
L1	0.05REF		
载体尺寸 (Mil)	20*20		

Marking Information：

Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2025-09-06	Release of final version

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