6888 (文件编号：S&CIC1704) N-channel MOSFET

Features

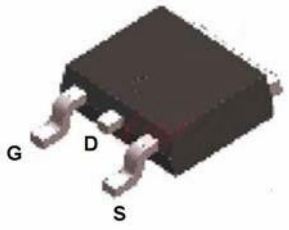
- 68V,88A
- $R_{DS(ON)}$=7.0mΩ (Typ.) @ V_{GS} = 10V
  $R_{DS(ON)}$=9.0mΩ (Typ.) @ V_{GS} = 4.5V
- High Density Cell Design for Ultra Low $R_{DS(ON)}$
- Fully Characterized Avalanche Voltage and Current
- Good Stability and Uniformity with High E_{AS}
- Excellent Package for Good Heat Dissipation

Application

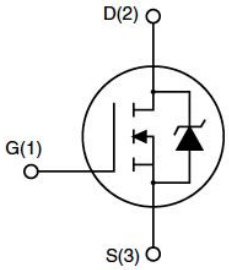
- Load Switch
- Hard Switched and High Frequency Circuits
- Uninterruptible Power Supply

Package

Marking and pin assignment



TO-263top view



Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
6888	6888	TO-263	-	-	-

Absolute Maximum Ratings (T_C=25℃ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		68	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25℃	88	A
		T_C = 100℃	56	A
I_{DM}	Pulsed Drain Current note1		240	A
P_D	Power Dissipation	T_C = 25℃	68	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		2.2	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +175	℃

Electrical Characteristics (T_C=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250μA	68	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =66V, V_{GS} = 0V,	-	-	1.0	μA
I_{GSS}	Gate to 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	1.2	1.7	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	V_{GS} =10V, I_D =40A	-	7.0	8.2	mΩ
		V_{GS} =4.5V, I_D =30A	-	9.0	11	
g_{FS}	Forward Transconductance	V_{DS} =5V, I_D =20A	10	-	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = 30V, V_{GS} =0V, f = 1.0MHz	-	1980	-	pF
C_{oss}	Output Capacitance		-	470	-	pF
C_{rss}	Reverse Transfer Capacitance		-	14	-	pF
Q_g	Total Gate Charge	V_{DS} =30V, I_D =20A, V_{GS} =10V	-	31	-	nC
Q_{gs}	Gate-Source Charge		-	6	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	5	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=30V, I_D =20A, R_L=1Ω, R_{GEN}=3Ω, V_{GS} =10V	-	10	-	ns
t_r	Turn-on Rise Time		-	5	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	30	-	ns
t_f	Turn-off Fall Time		-	8	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	80	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	320	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} =0V, I_S=20A	-	0.8	1.2	V
t_{rr}	Body Diode Reverse Recovery Time	T_J=25℃, I_F=20A,dI/dt=100A/μs	-	17	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	58	-	nC

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

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

Test Circuit

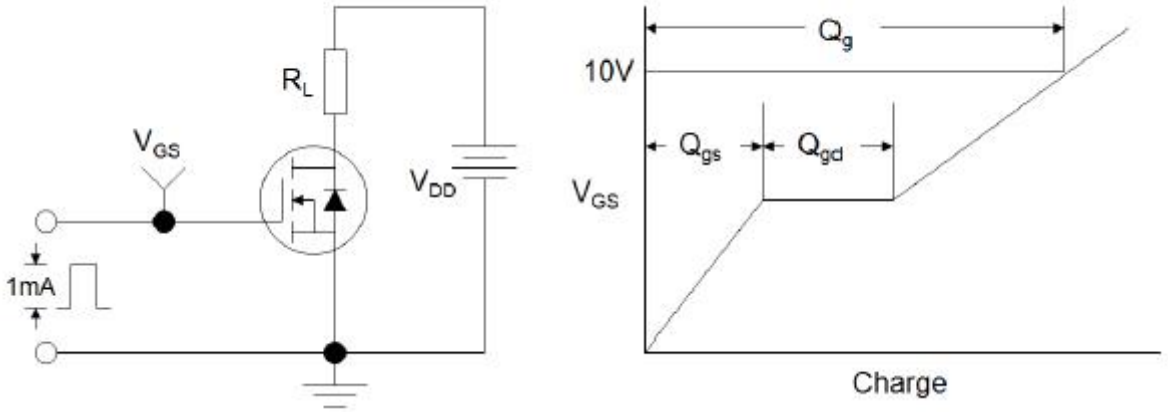


Figure1:Gate Charge Test Circuit & Waveform

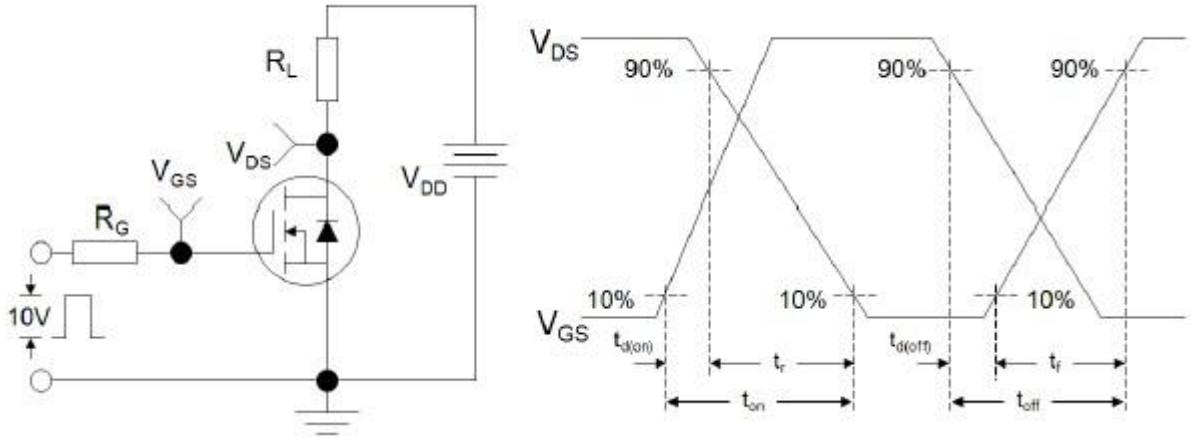


Figure 2: Resistive Switching Test Circuit & Waveforms

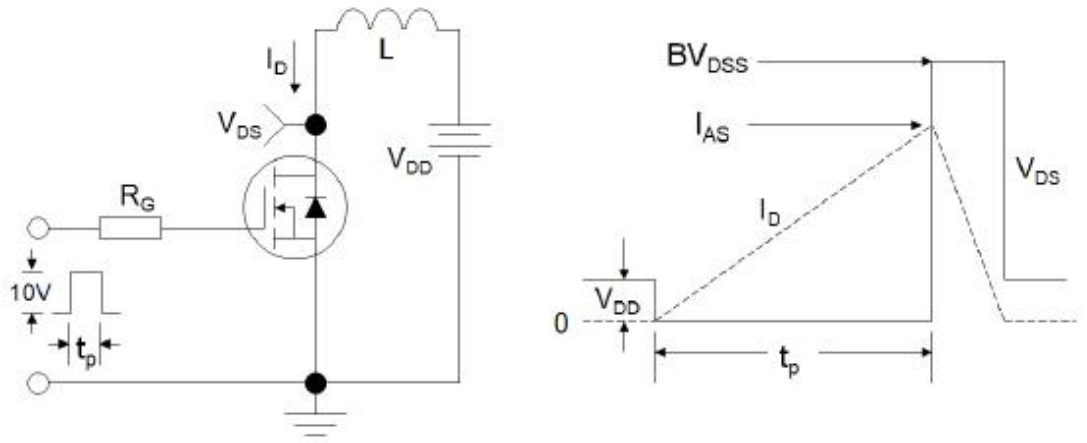


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

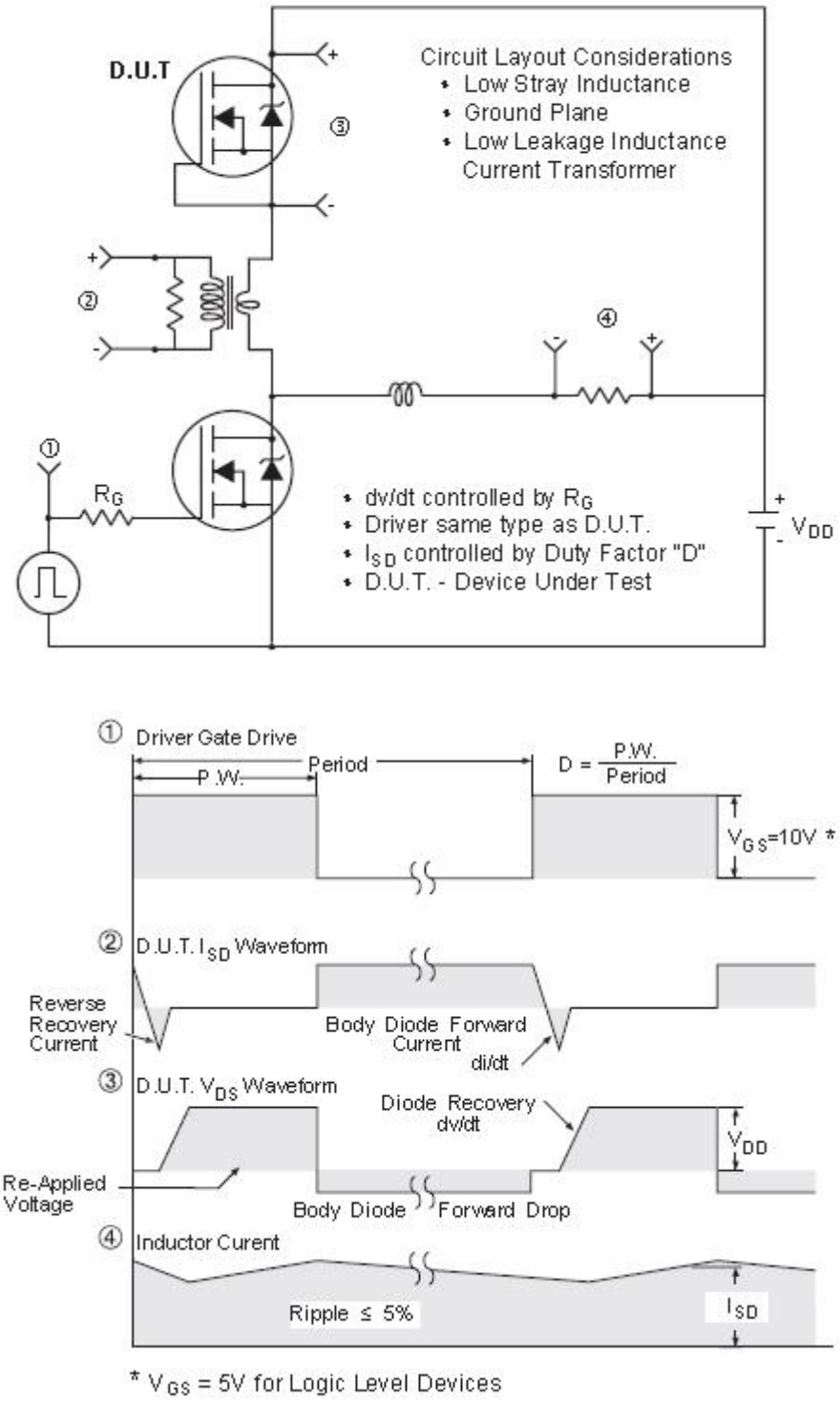
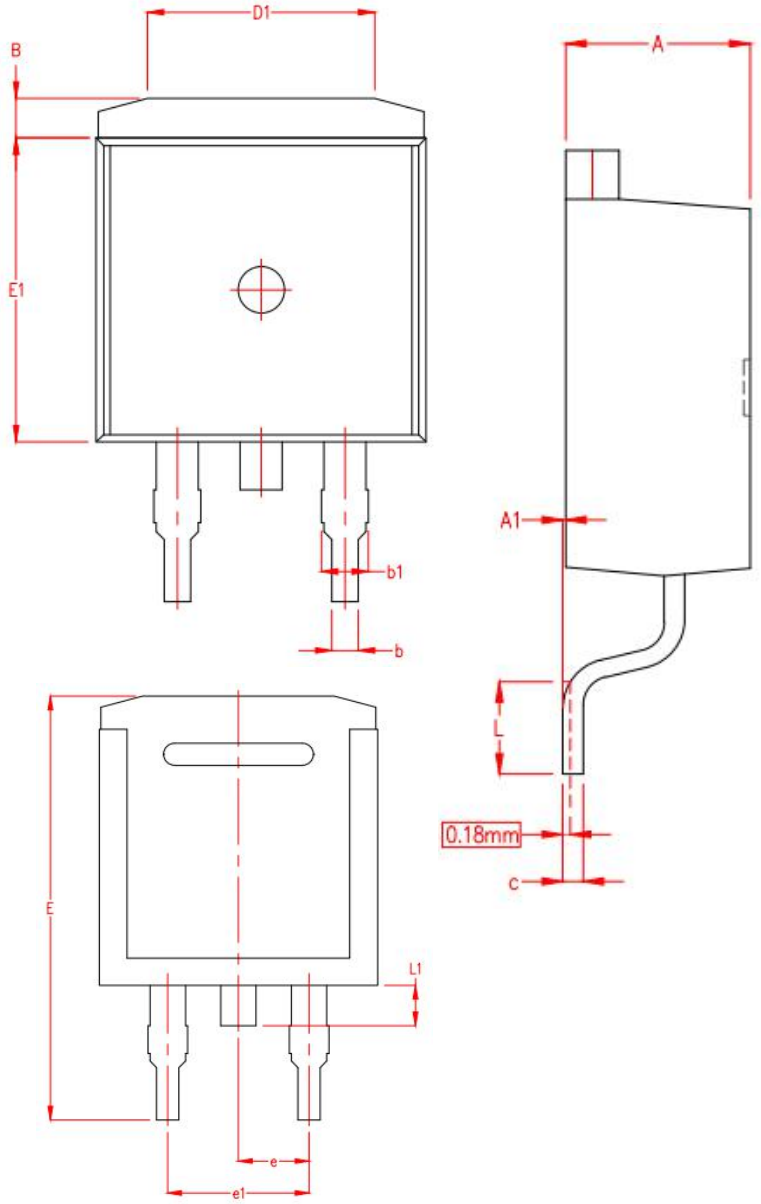


Figure 4:Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)

TO-263 Package Information



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	4.45	4.50	4.55
A1	0	0.07	0.15
B	1.08	1.20	1.32
b		0.80TYP.	
b1	1.24	1.27	1.30
c	0.48	0.50	0.52
D	9.95	10.00	10.05
D1		6.89REF.	
E	15.09	15.24	15.39
E1	9.15	9.20	9.25
e	2.51	2.54	2.57
e1	5.05	5.08	5.11
L	2.29	2.54	2.79