

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	STD10NF10L
▶ Overseas	Part Number	STD10NF10L
▶ Equivalent	Part Number	STD10NF10L

EV is the abbreviation of name EVVO

100V N-Channel Power MOSFET

General Description

The STD10NF10 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a wide variety of applications.

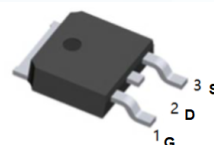
Features

- $V_{DS} = 100V, I_D = 15A$
 $R_{DS(ON)}, 95\text{ m}\Omega$ (Typ) @ $V_{GS} = 10V$
 $R_{DS(ON)}, 100\text{ m}\Omega$ (Typ) @ $V_{GS} = 4.5V$

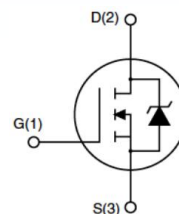
- Low Total Gate Charge
- Low Reverse Transfer Capacitance
- Improved dv/dt Capability
- Fast Switching Speed

Application

- Uninterruptible Power Supply(UPS)
- Inverter System



TO-252(DPAK) top view



Absolute Maximum Ratings($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current-Continuous	$TC = 25^\circ\text{C}$	I_D	15	A
	$TC = 100^\circ\text{C}$		10	A
Drain Current-Pulsed ^{Note2}		I_{DM}	60	A
Maximum Power Dissipation	$TC = 25^\circ\text{C}$	P_D	55	W
Storage Temperature Range		T_{STG}	-55 to +175	$^\circ\text{C}$
Operating Junction Temperature Range		T_J	-55 to +175	$^\circ\text{C}$

Thermal Resistance

Parameter	Symbol	Min.	Typ.	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	-	2.72	-	$^\circ\text{C/W}$

100V N-Channel Power MOSFET

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

OFF CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250uA	100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V	-	-	1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA

ON CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _{DS} =250uA	1.0	1.6	3.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _{DS} =10A	-	95	110	mΩ
		V _{GS} =4.5V, I _{DS} =5A	-	100	130	
Forward Transconductance	g _{FS}	V _{GS} =5V, I _{DS} =4A	2	-	-	S

DYNAMIC CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Capacitance	C _{iss}	V _{DS} = 50V, V _{GS} = 0V, f=1MHz	-	632	-	pF
Output Capacitance	C _{oss}		-	37	-	
Reverse Transfer Capacitance	C _{rss}		-	21	-	

SWITCHING CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Turn-On Delay Time	T _{d(on)}	V _{GS} =10V, V _{DS} =50V, R _L =2.8Ω, R _{GEN} =6Ω, I _D =10A	-	12.6	-	ns
Rise Time	t _r		-	6	-	
Turn-Off Delay Time	T _{d(off)}		-	32.5	-	
Fall Time	t _f		-	4.3	-	
Total Gate Charge at 10V	Q _g	V _{DS} =80V, I _{DS} =10A, V _{GS} =10V	-	19.2	-	nC
Gate to Source Gate Charge	Q _{gs}		-	3.4	-	
Gate to Drain "Miller" Charge	Q _{gd}		-	6.1	-	

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _{DS} =10A	-	-	1.2	V

Notes 1. The maximum current rating is package limited.

Notes 2. Repetitive Rating: Pulse width limited by maximum junction temperature

Notes 3. EAS condition: T_J=25°C, V_{DD}=50V, V_G=10V, R_G=25Ω

100V N-Channel Power MOSFET

Typical Performance Characteristics

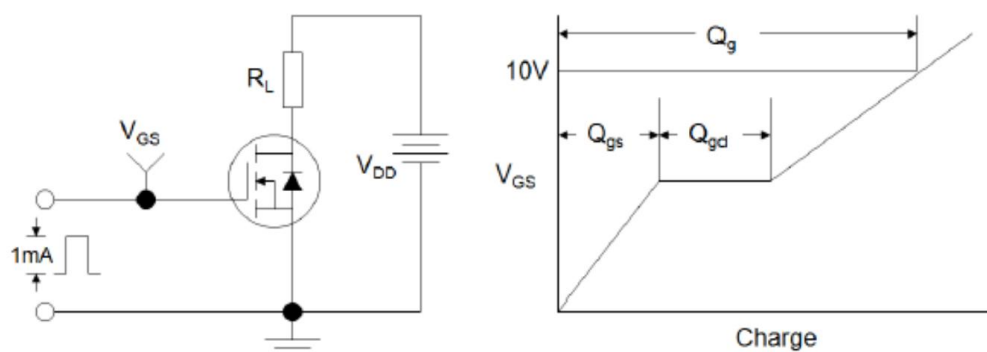


Figure1: Gate Charge Test Circuit & Waveform

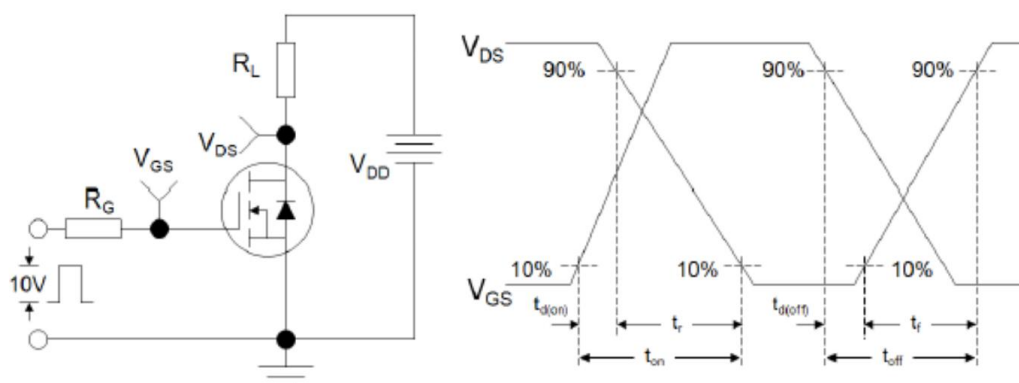


Figure 2: Resistive Switching Test Circuit & Waveforms

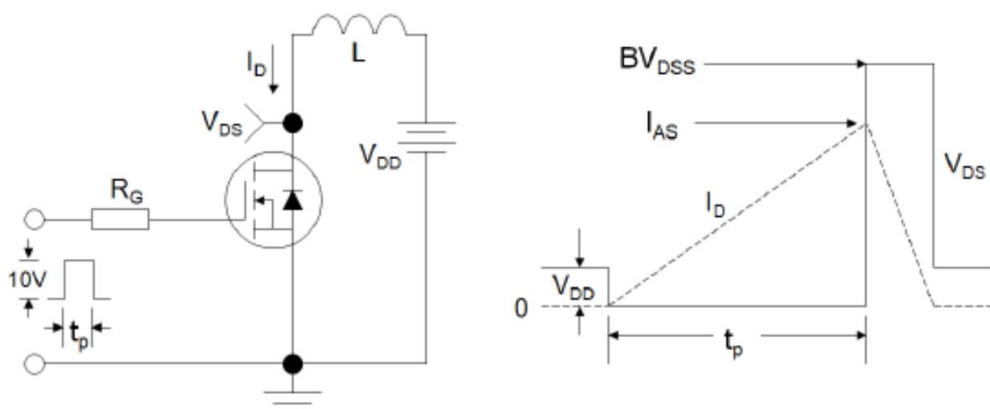


Figure 3: Unclamped Inductive Switching Test Circuit & Waveforms

100V N-Channel Power MOSFET

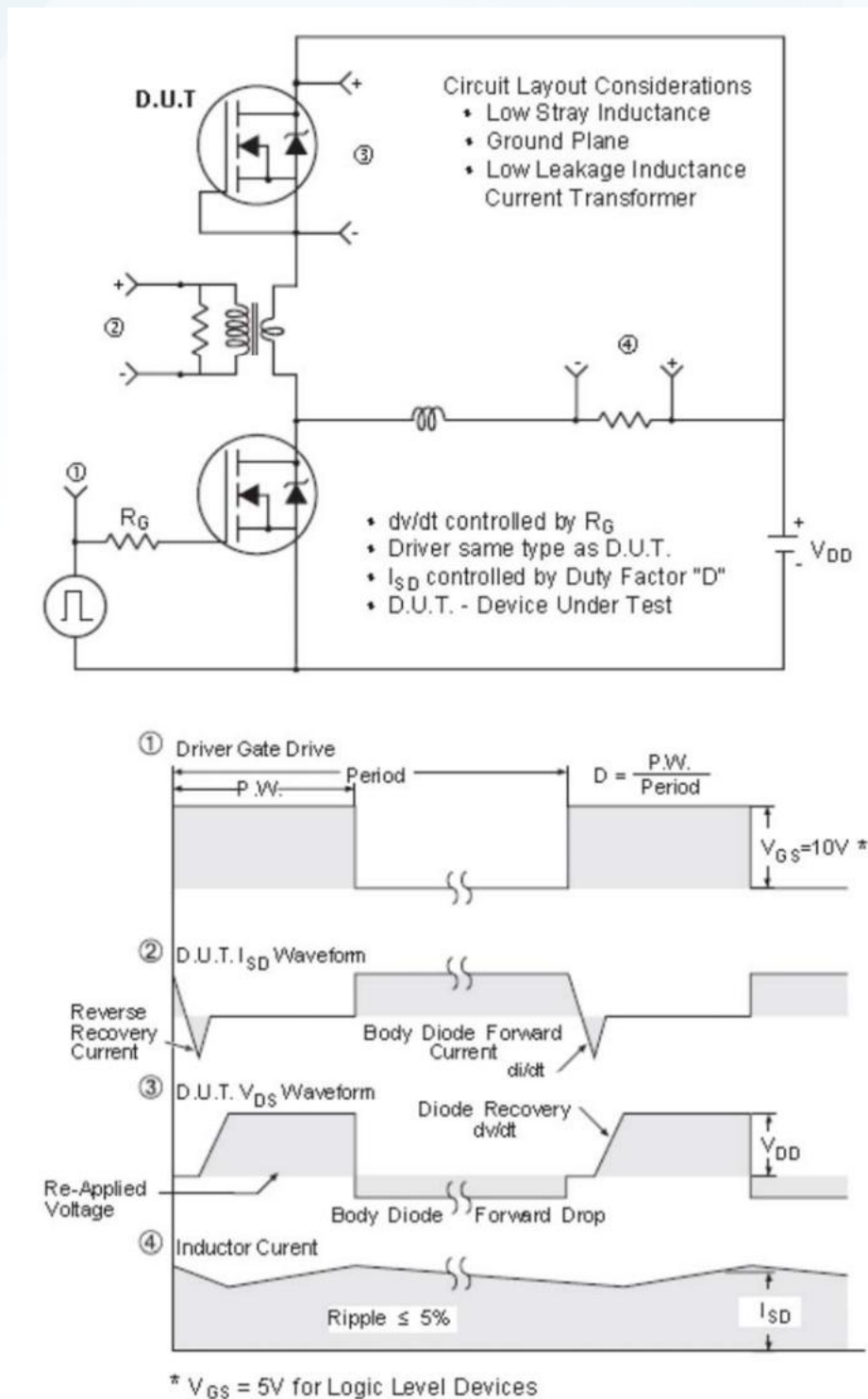
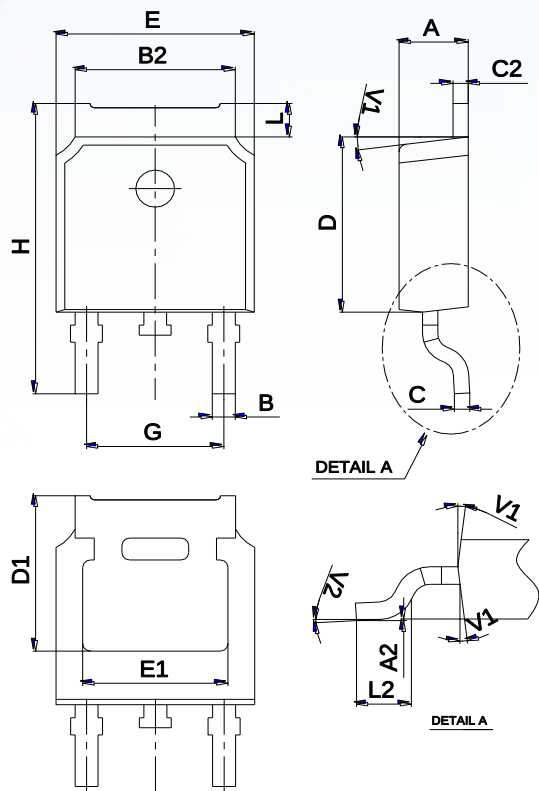


Figure 4: Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)

100V N-Channel Power MOSFET

Package Mechanical Data TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Ordering information

Order code	Package	Baseqty	Delivery mode
STD10NF10L	TO-252	2500	Tape and reel

Disclaimer

EVVOSEMI ("EVVO") reserves the right to make corrections, enhancements, improvements, and other changes to its products and services at any time, and to discontinue any product or service without notice.

EVVO warrants the performance of its hardware products to the specifications applicable at the time of sale in accordance with its standard warranty. Testing and other quality control techniques are used as deemed necessary by EVVO to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Customers should obtain and confirm the latest product information and specifications before final design, purchase, or use. EVVO makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does EVVO assume any liability for application assistance or customer product design. EVVO does not warrant or accept any liability for products that are purchased or used for any unintended or unauthorized application.

EVVO products are not authorized for use as critical components in life support devices or systems without the express written approval of EVVOSEMI.

The EVVO logo and EVVOSEMI are trademarks of EVVOSEMI or its subsidiaries in relevant jurisdictions. EVVO reserves the right to make changes without further notice to any products herein.