

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

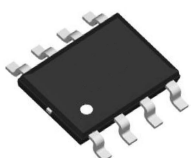
Product Summary



V_{DS}	-30	V
I_D	-7.5	A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	30	m Ω
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	45	m Ω

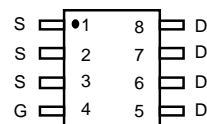
Applications

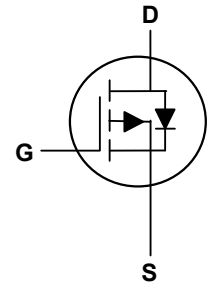
- High Frequency Point-of-Load, Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch



SOP-8 Top View

Top View





Absolute Maximum Ratings($T_C=25^\circ C$, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	$I_D@T_C=25^\circ C$	-7.5	A
Continuous Drain Current ¹	$I_D@T_C=100^\circ C$	-5.2	A
Pulsed Drain Current ²	I_{DM}	-25	A
Total Power Dissipation ⁴	$P_D@T_A=25^\circ C$	1.5	W
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ C$
Operating Junction Temperature Range	T_J	-55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	---	58	$^\circ C/W$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	20	$^\circ C/W$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	-30	---	---	V
Static Drain-Source On-Resistance ²	R _{DS(ON)}	V _{GS} =-10V, I _D =-7A	---	27	30	mΩ
		V _{GS} =-4.5V, I _D =-5A	---	38	45	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250uA	-1	---	-2.5	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	---	---	1.0	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
Forward Transconductance	g _{fs}	V _{DS} =-10V, I _D =-1A	---	10	---	S
Total Gate Charge	Q _g	V _{DD} =-10V, V _{GS} =-10V, I _D =-5A	---	14	---	nC
Gate-Source Charge	Q _{gs}		---	6	---	
Gate-Drain Charge	Q _{gd}		---	5	---	
Turn-On Delay Time	T _{d(on)}	V _{DD} =-15V, V _{GS} =-10V, R _G =6Ω, I _D =-1A	---	4.6	---	ns
Rise Time	T _r		---	14	---	
Turn-Off Delay Time	T _{d(off)}		---	34	---	
Fall Time	T _f		---	18	---	
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz	---	895	---	pF
Output Capacitance	C _{oss}		---	160	---	
Reverse Transfer Capacitance	C _{rss}		---	125	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage ²	V _{SD}	I _S =-7A	---	---	1.28	V

Note:

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The power dissipation is limited by 150°C junction temperature

Typical Characteristics

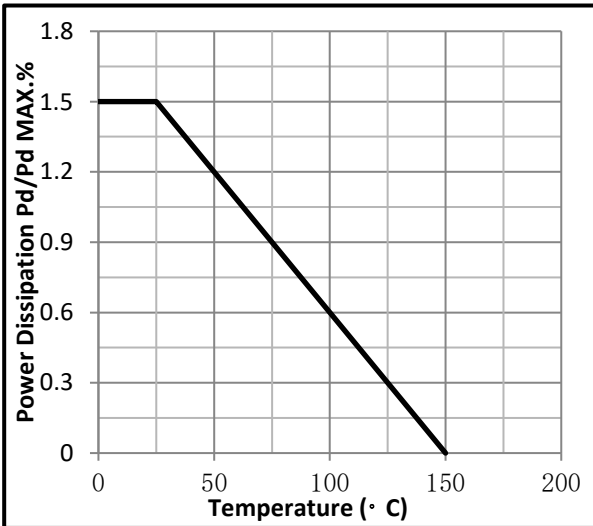


Fig.1 Power Dissipation Derating Curve

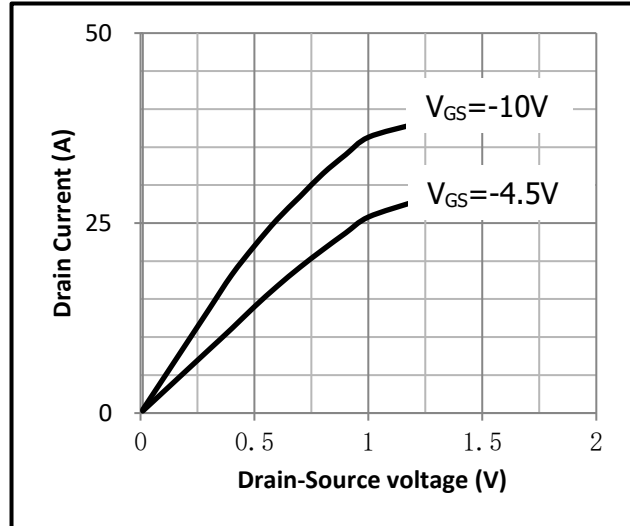


Fig.2 Typical output Characteristics

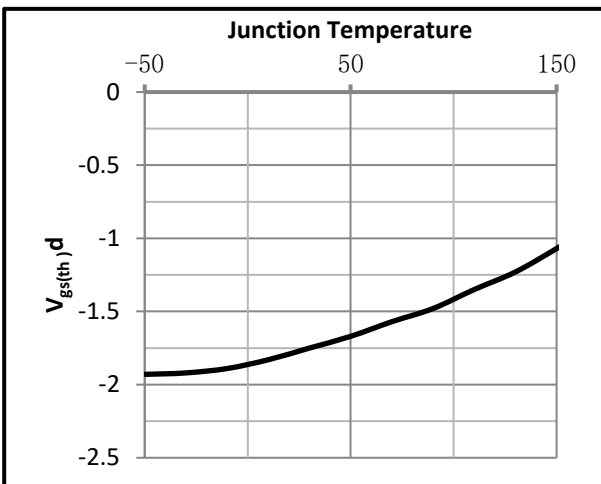


Fig.3 Threshold Voltage V.S Junction Temperature

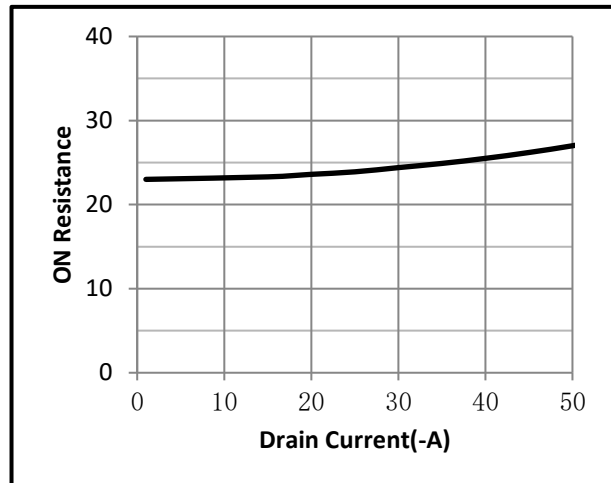


Fig.4 Resistance V.S Drain Current

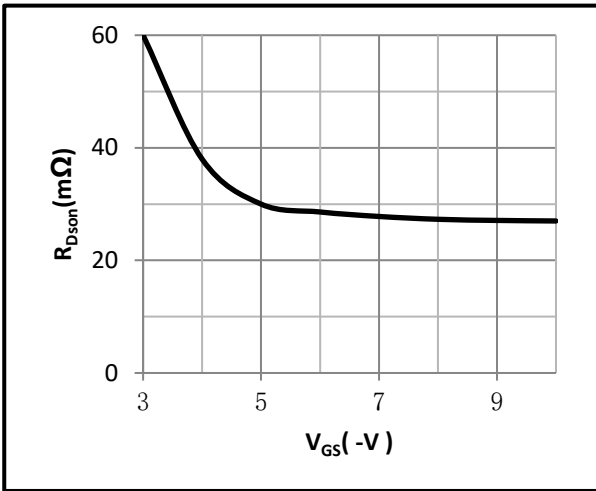


Fig.5 On-Resistance VS Gate Source Voltage

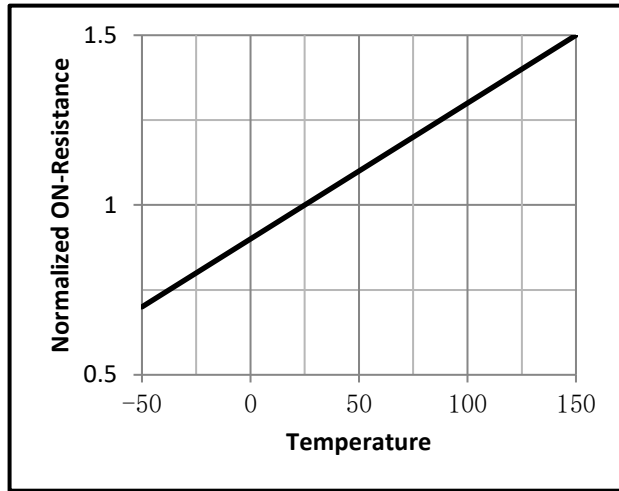


Fig.6 On-Resistance V.S Junction Temperature

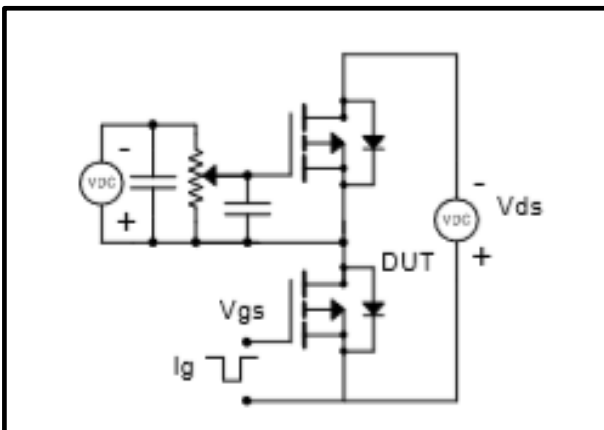


Fig.7 Switching Time Measurement Circuit

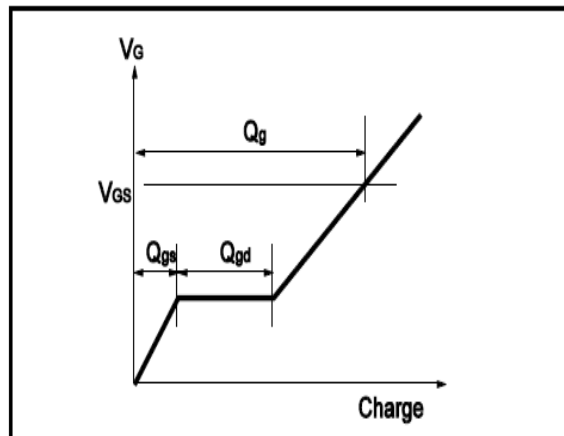


Fig.8 Gate Charge Waveform

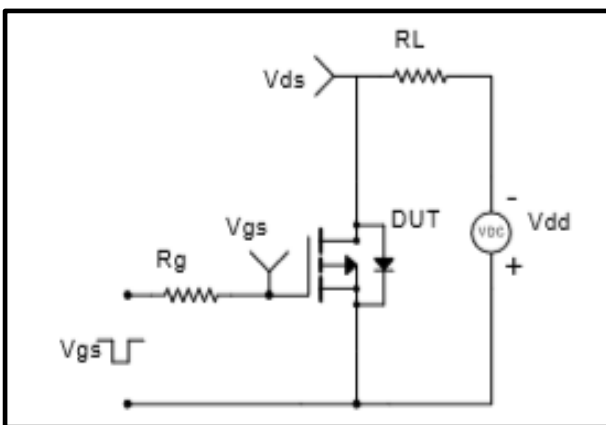


Fig.9 Switching Time Measurement Circuit

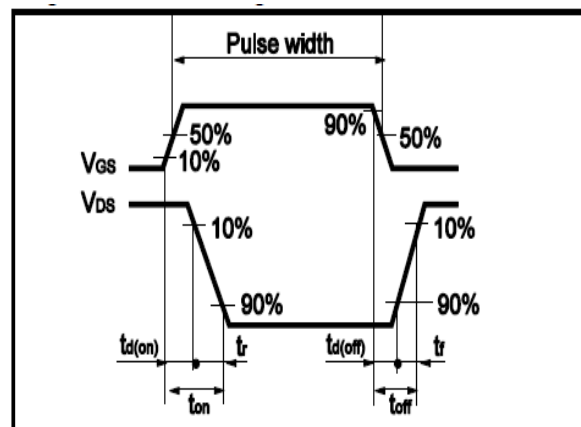
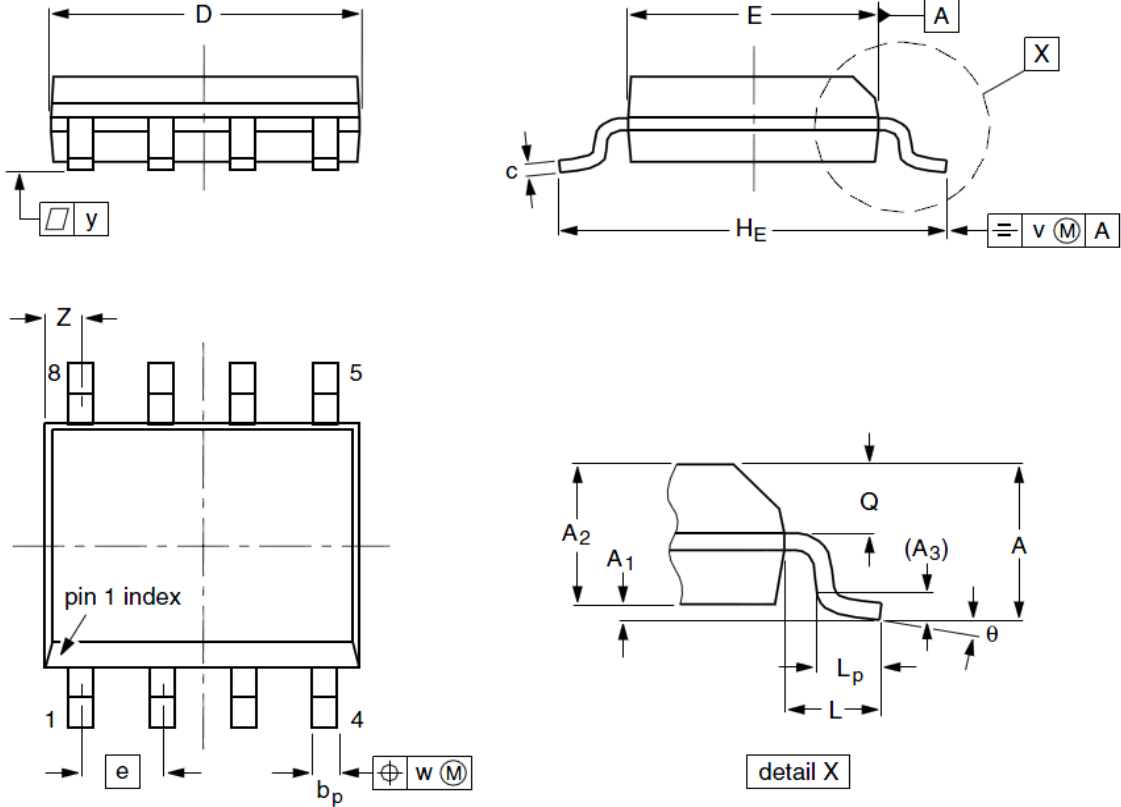


Fig.10 Gate Charge Waveform

SOP-8 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	1.35	1.55	1.75	A₁	0.10	0.18	0.25
A₂	1.25	1.45	1.65	A₃	--	0.25	--
b_p	0.36	0.42	0.51	c	0.19	0.22	0.25
D	4.70	4.92	5.10	E	3.80	3.90	4.00
e	--	1.27	--	H_E	5.80	6.00	6.20
L	--	1.05	--	L_p	0.40	0.68	1.00
Q	0.60	0.65	0.73	v	--	0.25	--
w	--	0.25	--	y	--	0.10	--
Z	0.30	0.50	0.70	θ	0°		8°