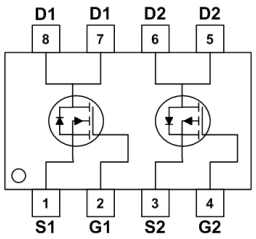
LH26N30P

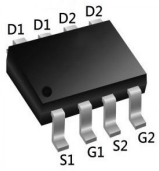
N-Ch+ P-Ch MOSFET

•General Description

The N-ch and P-ch MOSFET LH26N30P uses trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.This device is suitable for high current load applications.



V_{DS1} =30V
RDS(ON)1 =26mΩ
ID_1=6A
V_{DS2}=-30V
RDS(ON)2 =30mΩ
ID_2=-6A



SOP-8

■RoHS COMPLIANT

•Features

■Advance high cell density trench technology
■Low RDS(ON) to minimize conductive loss
■Low Gate Charge for fast switching

•Application

■Lighting
■Power Supplies
■Wireless Charger

•Ordering Information:

Part Number	LH26N30P
Package	SOP-8
Basic Ordering Unit (pcs)	4000
Normal Package Material Ordering Code	LH26N30PS-SOP8-TAP
Halogen Free Ordering Code	LH26N30PS-SOP8-TAP-HF

•Absolute Maximum Ratings（TC =25℃）

PARAMETER	SYMBOL	Value		UNIT
		N-Channel	P-Channel	
Drain-Source Breakdown Voltage	BV_{DSS}	30	-30	V
Gate-Source Voltage	V_{GS}	±20	±20	V
Continuous Drain Current ,T_C = 25°C	I_D	6	-6	A
Pulsed drain current (TC = 25°C, tp limited by Tjmax)[1]	I_{DM}	21	-12	A
Power Dissipation[2]	$P_D(T_A$=25℃)	1.3	2.5	W
	$P_D(T_A$=70℃)	0.8	1.6	
Operating Temperature	T_J	-55~+150	-55~+150	℃
Storage Temperature	T_{STG}	-55~+150	-55~+150	℃

●Electronic Characteristics(Tj=25 Unless Otherwise Specified)(N-Ch.)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-50uA	30	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS},I_D=250uA	1.0	--	3.0	V
Drain-source On Resistance[1]	$R_{DS(ON)}$	V_{GS} =10V, I_D=6.7A	--	26	34	mΩ
		V_{GS} =4.5V, I_D=5.0A	--	35	40	
Drain-Source Leakage Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V,T_J=25℃	--	--	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V	--	--	±10	uA
Forward Transconductance	G_{FS}	V_{DS}=5V, I_D=5A	--	12	--	S
Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 15V, f = 1.0MHz	--	380	--	pF
Output Capacitance	Coss		--	64	--	
Reverse transfer Capacitance	Crss		--	41	--	
Turn-On Delay Time	$Td_{(on)}$	V_{DD}=15V, V_{GS}=10V, R_G=6Ω, I_D=1A	--	8.8	--	nS
Turn-Off Delay Time	$Td_{(off)}$		--	31.8	--	
Turn-On Rise Time	T_r		--	9.6	--	
Turn-Off Fall Time	T_f		--	3.9	--	
Total Gate Charge	Qg	I_D =5A, V_{DS} = 15V, V_{GS} =4.5V	--	5.8	---	nC
Gate-to-Source Charge	Qgs		--	2.9	--	
Gate-to-Drain Charge	Qgd		--	2.1	---	
Continuous Diode Forward Current[1]	I_S	V_{Gs}=V_{DS}=0V, Force Current	--	--	6	A
Pulsed Diode Forward Current	I_{SM}	--	--	--	21	A
Diode Forward Voltage	V_{SD}	Tj=25°C, Is=-1A, V_{GS} =0V	--	0.8	1.2	V

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	Rth_{JC}	22	℃/W
Thermal Resistance Junction-ambient(t≤10s)[3]	Rth_{JA}	90	℃/W

Notes:

1.Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2% ;

2.The Power Dissipation is limited by 150℃ junction temperature;

3.Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.

●Electronic Characteristics(Tj=25 Unless Otherwise Specified)(P-Ch.)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250uA	-30	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS},I_D=-250uA	-1.0	--	-3.0	V
Drain-source On Resistance[1]	$R_{DS(ON)}$	V_{GS} =-10V, I_D=-5.3A	--	25	30	mΩ
		V_{GS} =-4.5V, I_D=-4.2A	--	32	40	
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-24V,V_{GS}=0V,T_J=25℃	--	--	-1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20,V_{DS}=0V	--	--	±100	nA
Forward Transconductance	G_{FS}	V_{DS}=-5V, I_D=-5A	--	17	--	S
Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = -15V, f = 1.0MHz	--	840	--	pF
Output Capacitance	Coss		--	120	--	
Reverse transfer Capacitance	Crss		--	35	--	
Turn-On Delay Time	$Td_{(on)}$	V_{DD}=-15V, V_{GS}=-10V, R_G=3.3Ω, I_D=-61A	--	32	--	nS
Turn-Off Delay Time	$Td_{(off)}$		--	58	--	
Turn-On Rise Time	T_r		--	13	--	
Turn-Off Fall Time	T_f		--	6	--	
Total Gate Charge	Qg	I_D =-5.3A, V_{DS} = -15V, V_{GS} =-4.5V	--	20.6	---	nC
Gate-to-Source Charge	Qgs		--	6	--	
Gate-to-Drain Charge	Qgd		--	5.5	---	
Continuous Diode Forward Current[1]	I_S	V_{Gs}=V_{DS}=0V, Force Current	--	--	-6	A
Pulsed Diode Forward Current	I_{SM}	--	--	--	-12	A
Diode Forward Voltage	V_{SD}	Tj=25°C, Is=-1A, V_{GS} =0V	--	--	-1.2	V
Reverse Recovery Time	trr	If=Is di_F/dt=100A/μs	--	15	--	ns
Reverse Recovery Charge	Qrr		--	10	--	uC

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	Rth_{JC}	24	℃/W
Thermal Resistance Junction-ambient(t≤10s)[3]	Rth_{JA}	45	℃/W

Notes:

1.Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2% ;

2.The Power Dissipation is limited by 150℃ junction temperature;

3.Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.

•Typical Characteristics(N-Ch.)

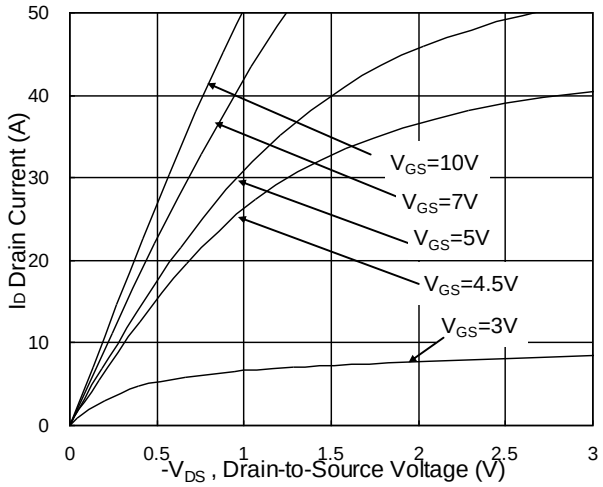


Fig.1 Typical Output Characteristics

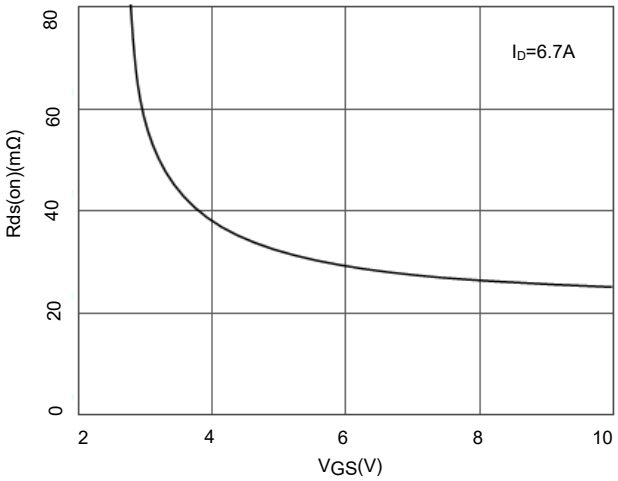


Fig.2 On-Resistance v.s Gate-Source

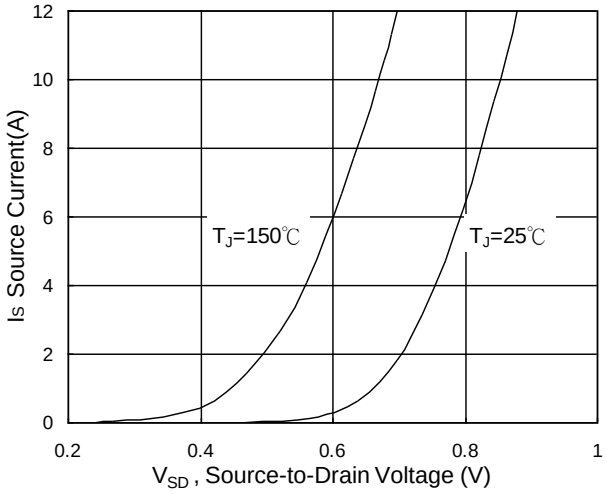


Fig.3 Forward Characteristics of Reverse

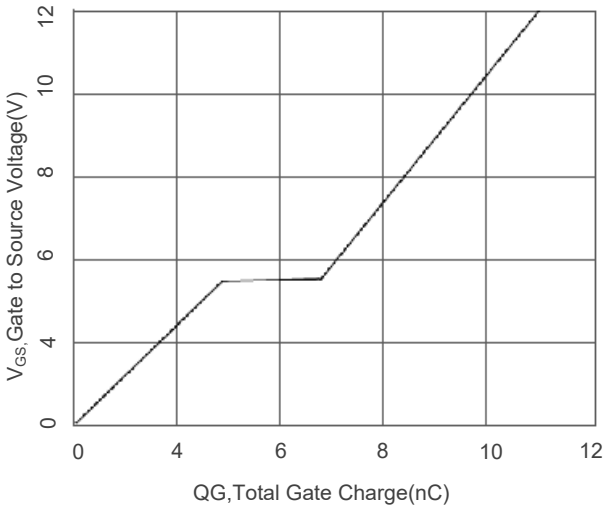


Fig.4 Gate-Charge Characteristics

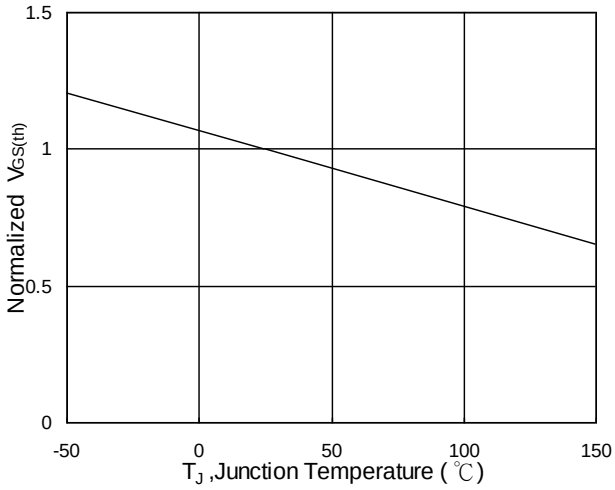


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

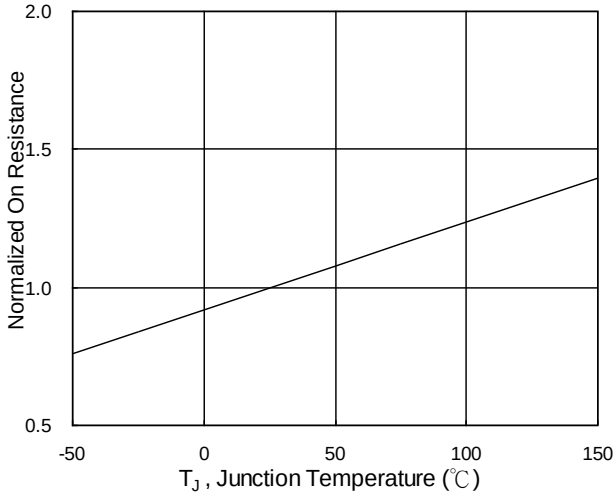


Fig.6 Normalized R_{DSON} vs. T_J

• Typical Characteristics(N-Ch.)(Cont.)

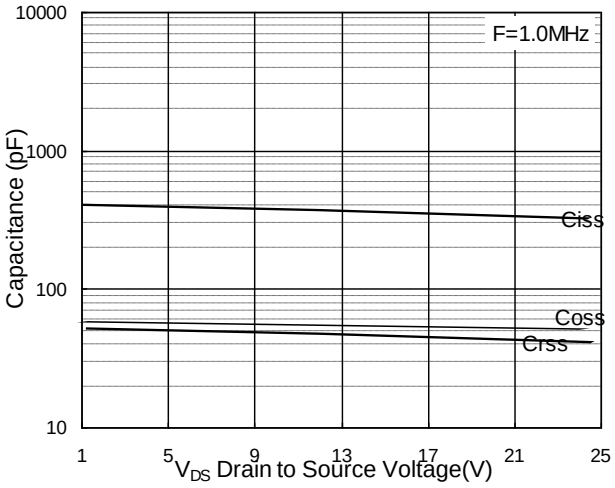


Fig.7 Capacitance

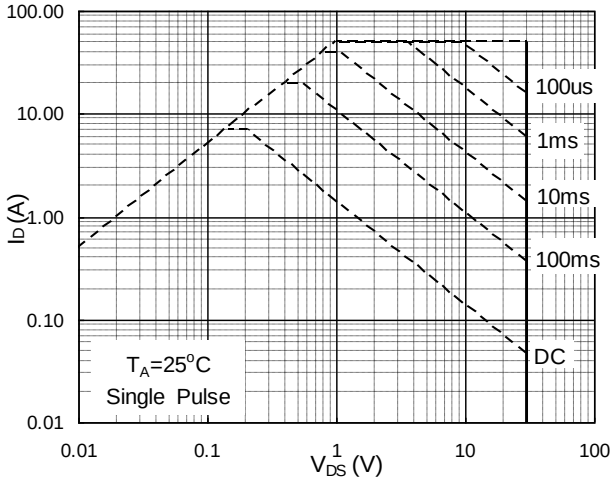


Fig.8 Safe Operating Area

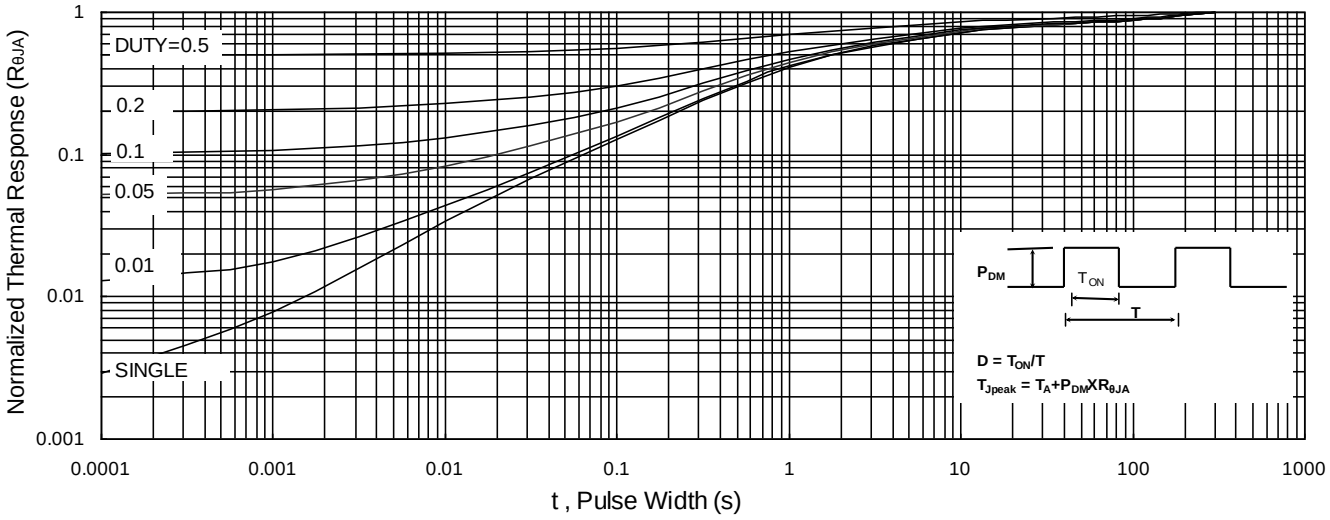


Fig.9 Normalized Maximum Transient Thermal Impedance

• Test Circuits & Waveforms

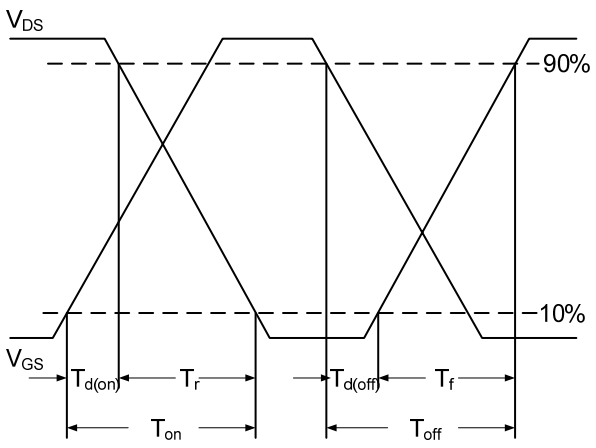


Fig.10 Switching Time Waveform

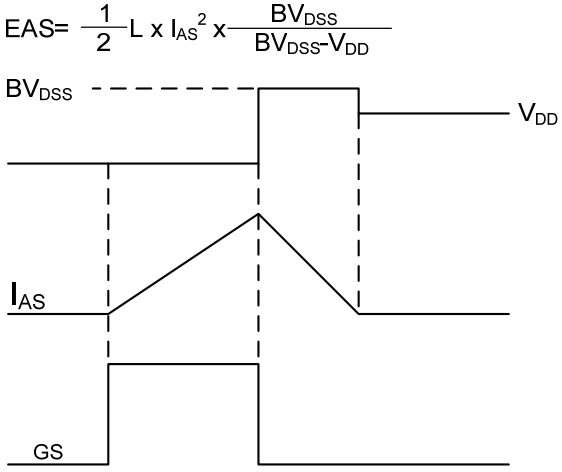


Fig.11 Unclamped Inductive Waveform

•Typical Characteristics(P-Ch.)

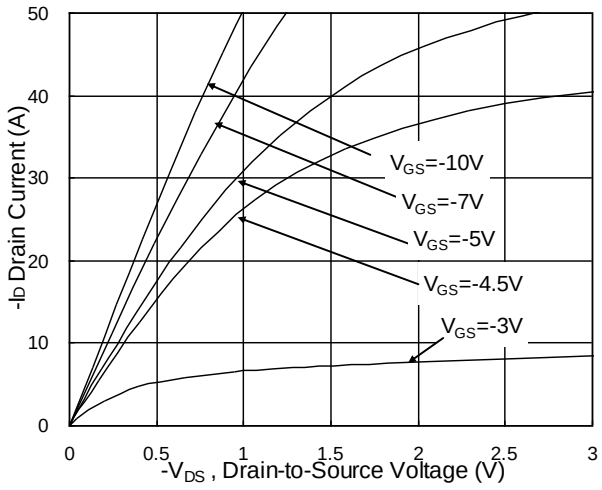


Fig.1 Typical Output Characteristics

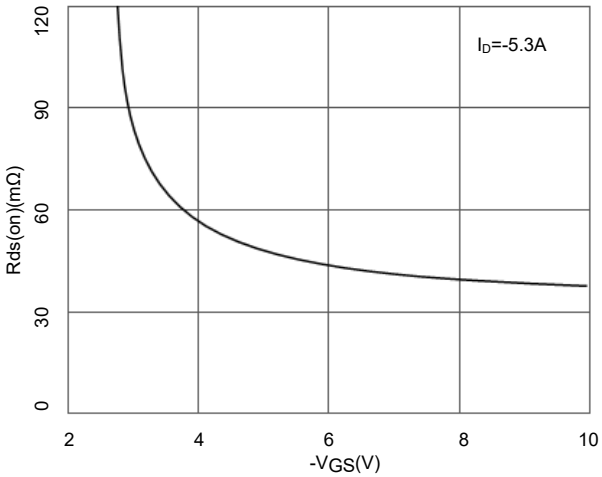


Fig.2 On-Resistance v.s Gate-Source

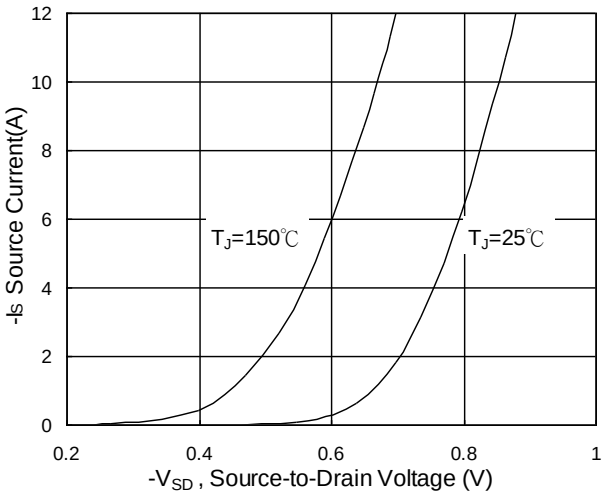


Fig.3 Forward Characteristics of Reverse

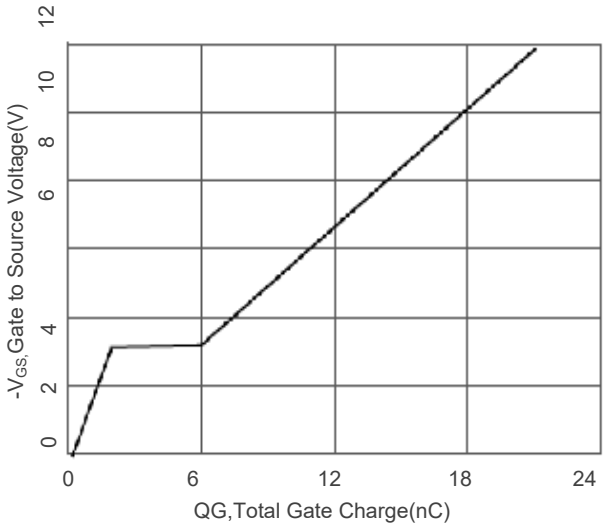


Fig.4 Gate-Charge Characteristics

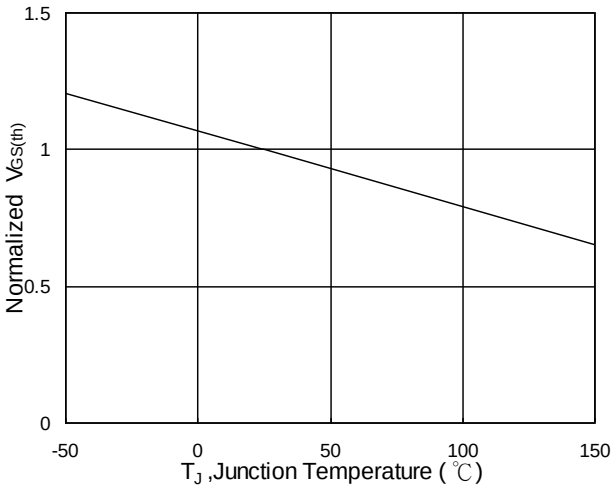


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

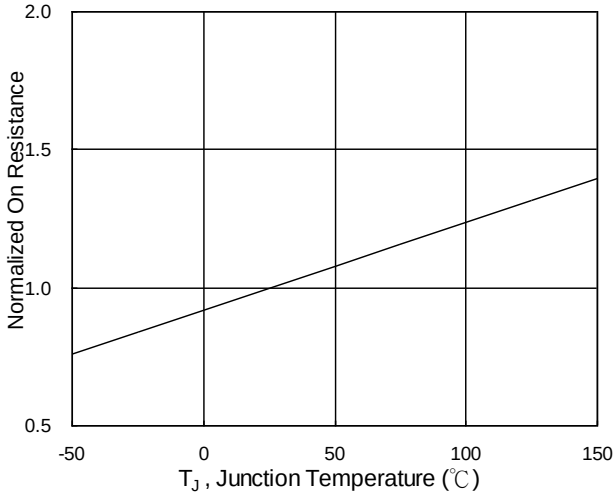


Fig.6 Normalized R_{DSON} vs. T_J

• Typical Characteristics(P-Ch.)(Cont.)

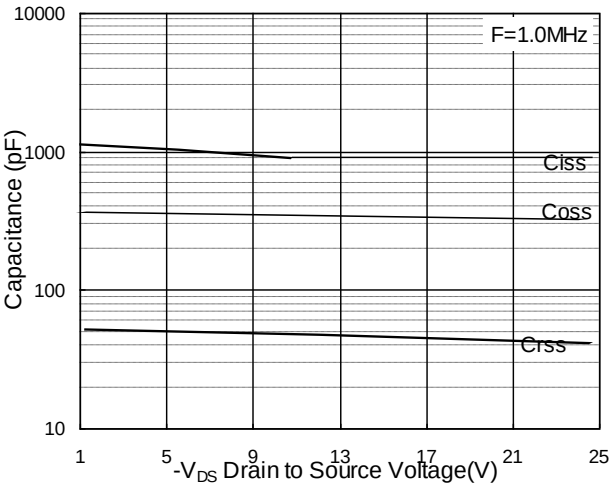


Fig.7 Capacitance

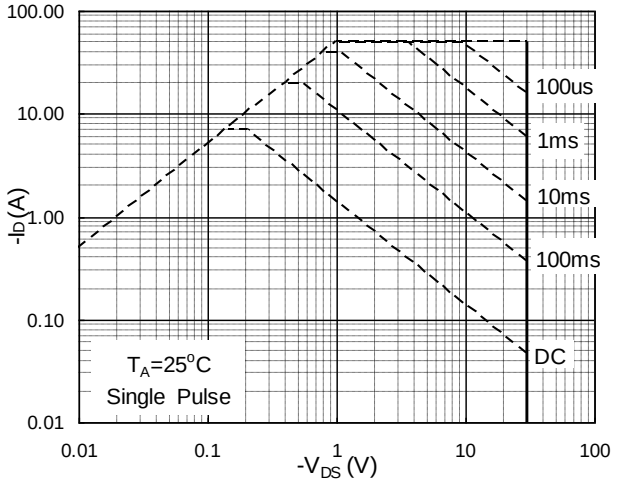


Fig.8 Safe Operating Area

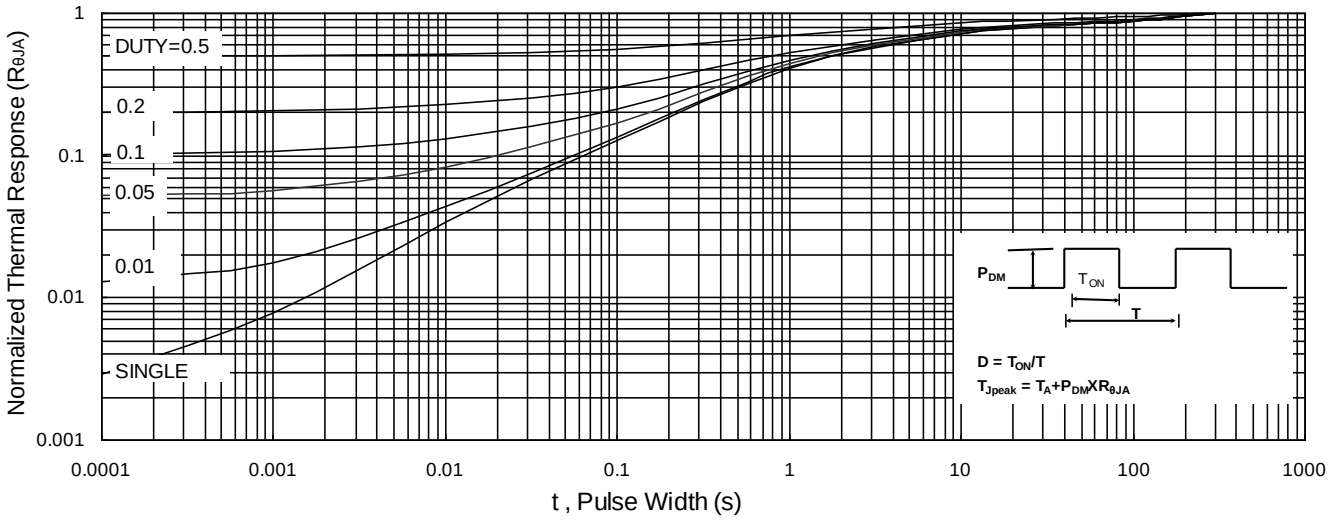


Fig.9 Normalized Maximum Transient Thermal Impedance

• Test Circuits & Waveforms

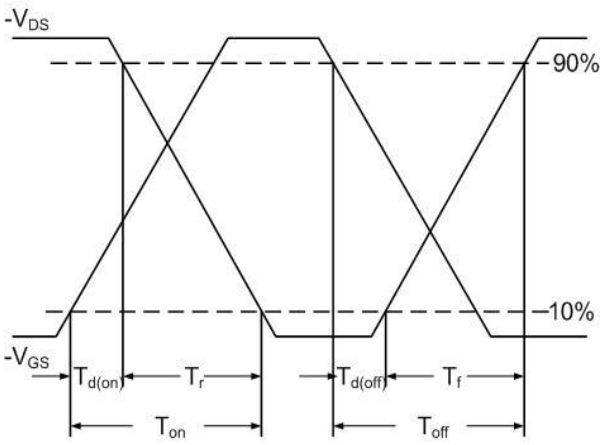


Fig.10 Switching Time Waveform

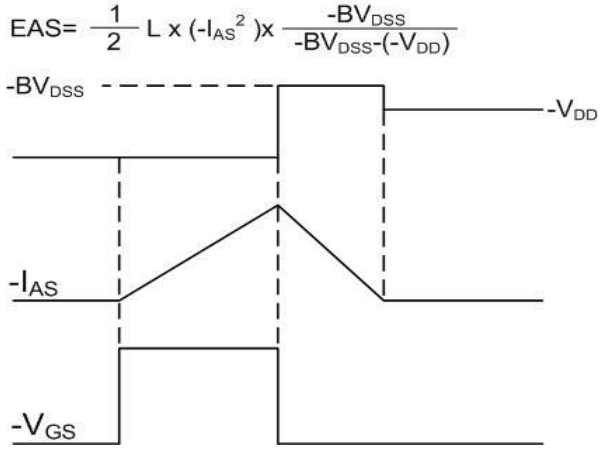


Fig.11Unclamped Inductive Switching Waveform

●Dimensions（SOP-8)

UNIT:mm

SYMBOL	min	max	SYMBOL	min	max
A	1.30	1.60	e	1.27BSC	
A1	1.35	1.85	L	0.40	1.30
b	0.30	0.60			
C	0.15	0.35			
D	4.60	5.20			
E	3.70	4.10			
E1	5.70	6.30