Features

- Super Low Gate Charge
- Green Device Available
- Excellent Cdv/dt effect decline
- Advanced high cell density Trench technology
- 100% EAS Guaranteed

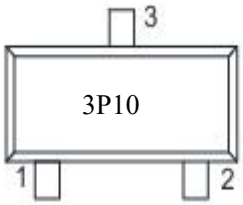
Bvdss	Rdson	ID
-100V	180mΩ	-3A

RoHS

Application

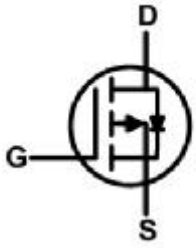
- PWM applications
- Load Switch
- Power management

Package



1.Marking and pin assignment

2. SOT23-3L top view



3.Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
3P10	3P10	SOT23-3L	3000

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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-100	V
Gate-Source Voltage		V_{Gs}	±20	V
Continuous Drain Current VGS @ -10V（1）	(Ta =25℃)	I_D	-0.75	A
	(Ta =100℃)	I_D	-0.6	A
	(Tc =25℃)	I_D	-3	A
	(Tc =25℃)	I_D	-1.2	A
Pulsed Drain Current (2)		I_{DM}	-6	A
Single Pulsed Avalanche Energy (3)		E_{As}	14.5	mJ
Avalanche Current		I_{AS}	-4.5	A
Power Dissipation(Ta =25℃)		P_d	2	W
Power Dissipation(Tc =25℃)		P_d	10	W
Junction Temperature		T_J	-55~+150	℃
Storage Temperature		T_{STG}	-55~+150	℃

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to case	$R_{\theta JC}$	8	℃/W
Junction to ambient	$R_{\theta JA}$	72	℃/W

Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL3P10	SOT23-3L	1	2	3	Tape Reel

Electrical Characteristics (Tj=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	V(br)dss	Id = -250μA, Vgs = 0V	-100	-	-	V
Zero-Gate Voltage Drain Current (Tj=25℃)	Idss	Vds = -80V, Vgs = 0V	-	-	-1.0	μA
Zero-Gate Voltage Drain Current(Tj=80℃)		Vds = -80V, Vgs = 0V	-	-	-30	μA
Gate to Source Leakage Current	Igss	Vgs = ±20V，Vds = 0V	-	-	±100	nA
Gate Threshold Voltage	Vgs(th)	Vds=Vgs, Id=-250μA	-1.2	-1.8	-2.5	V
Static Drain to Source On-State Resistance（2）	Rds(on)	Id = -3A, Vgs = -10V	-	180	220	mΩ
		Id = -2A, Vgs = -4.5V	-	210	225	mΩ
Input Capacitance	Ciss	Vgs=0V, Vds=-30V, Frequency=1.0MHz	-	1228	-	pF
Output Capacitance	Coss		-	41	-	pF
Reverse Transfer Capacitance	Crss		-	29	-	pF
gate resistance	Rg	f=1.0MHz	-	13	-	Ω
Turn-ON Delay Time	td(on)	Vdd =-30V Id = -1A Rg = 3.3Ω Vgs=-10V	-	9	-	ns
Rise Time	tr		-	6	-	ns
Turn-OFF Delay Time	td(off)		-	39	-	ns
Fall Time	tf		-	33	-	ns
Total Gate Charge	Qg	Vds = -50V, Vgs =-10V, Id = -2A	-	19	-	nC
	Qgs		-	3.4	-	nC
	Qgd		-	2.9	-	nC
Diode Forward Voltage（2）	Vsd	Is = -20A, Vgs = 0V	-	-	-1.2	V
Continuous Diode Forward Current（1）（5）	Is	V_G=V_D=0V , Force Current	-	-	-3	A

Notes:

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 EAS data shows Max. rating . The test condition is V_{DD}=-25V,V_{GS}=-10V,L=0.5mH,IAS=-14A

4.The power dissipation is limited by 150℃ junction temperature

5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

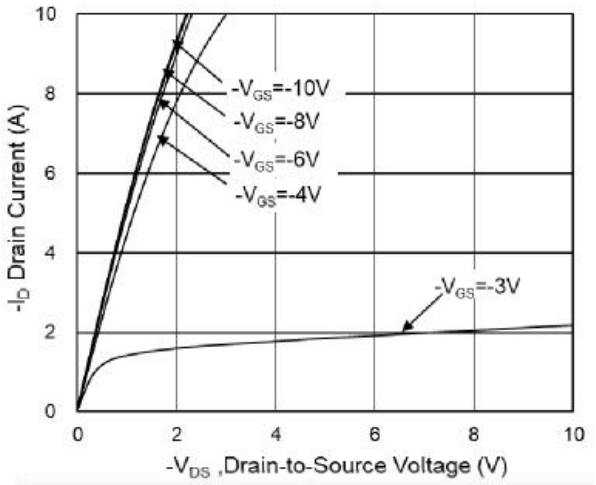


Fig.1 Typical Output Characteristics

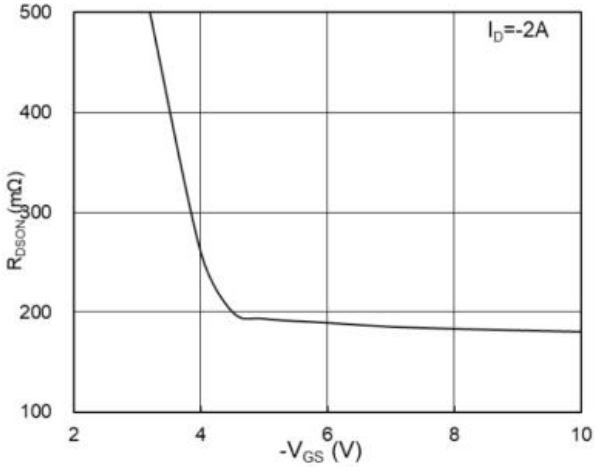


Fig.2 On-Resistance vs G-S Voltage

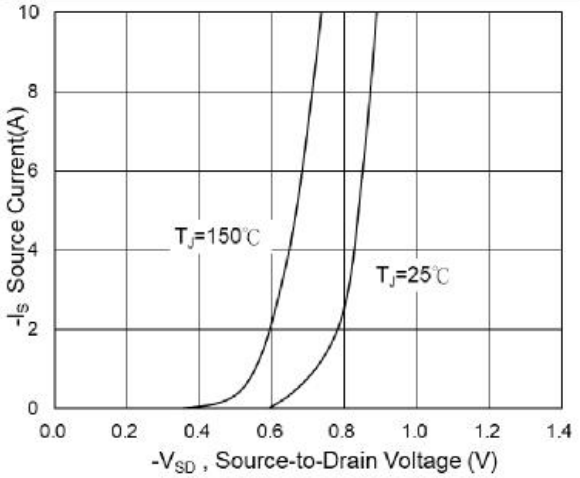


Fig.3 Source Drain Forward Characteristics

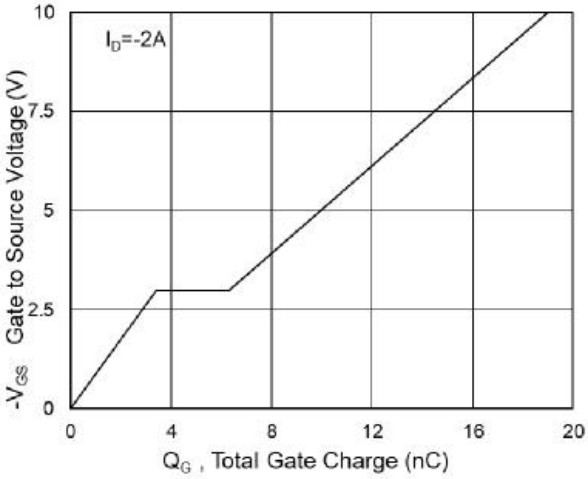


Fig.4 Gate-Charge Characteristics

Typical Characteristics

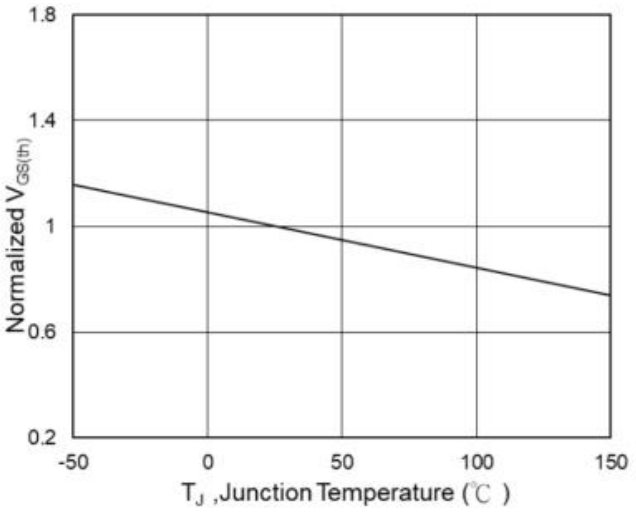


Fig.5 Normalized $V_{GS(th)}$ vs T_J

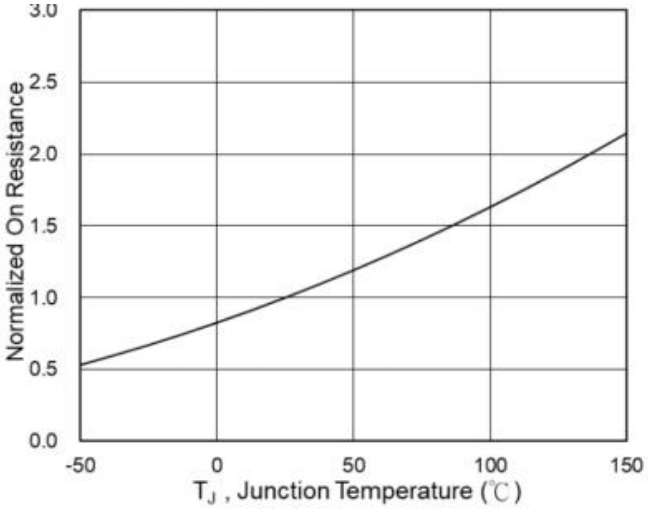


Fig.6 Normalized R_{DSON} vs T_J

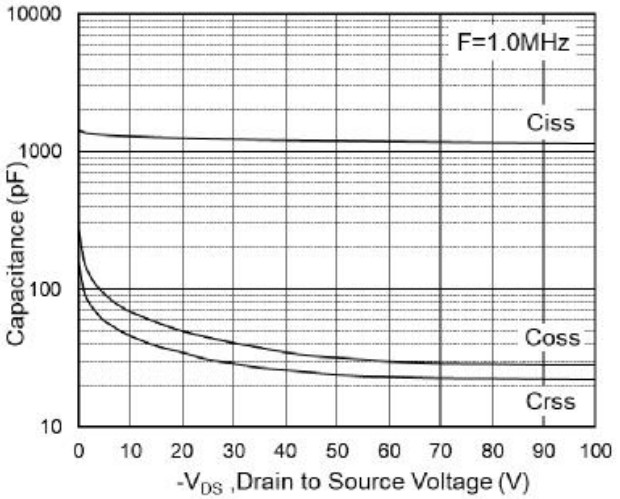


Fig.7 Capacitance

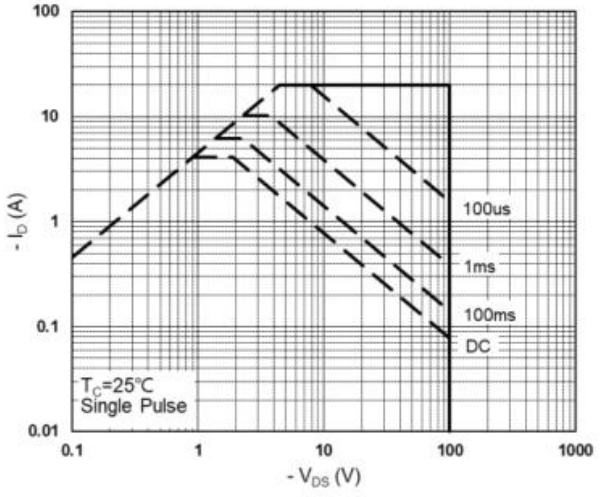


Fig.8 Safe Operating Area

Typical Characteristics

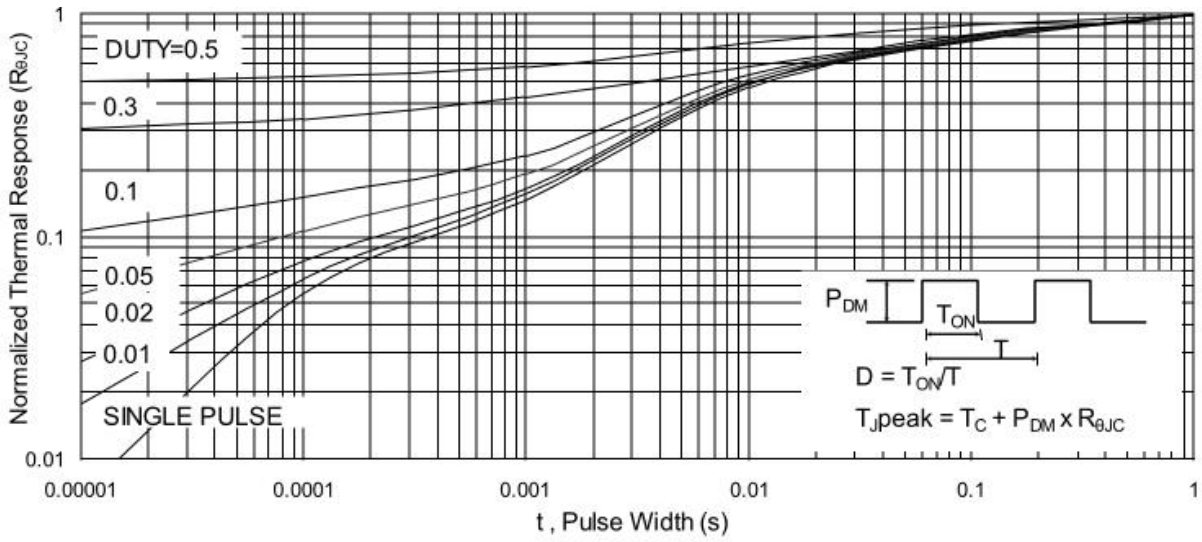


Fig.9 Normalized Maximum Transient Thermal Impedance

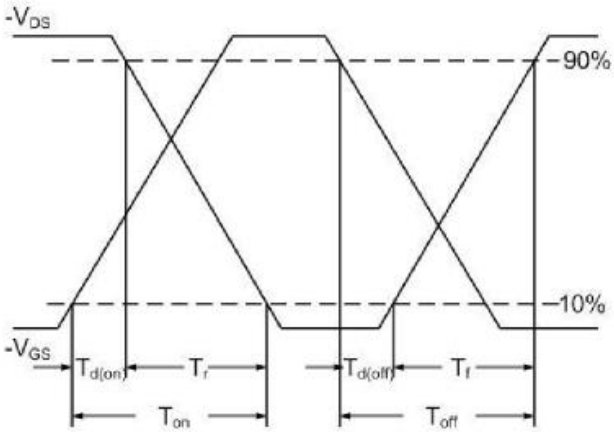


Fig.10 Switching Time Waveform

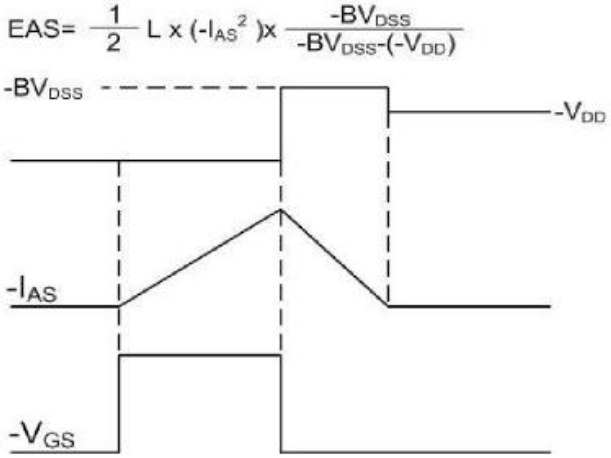
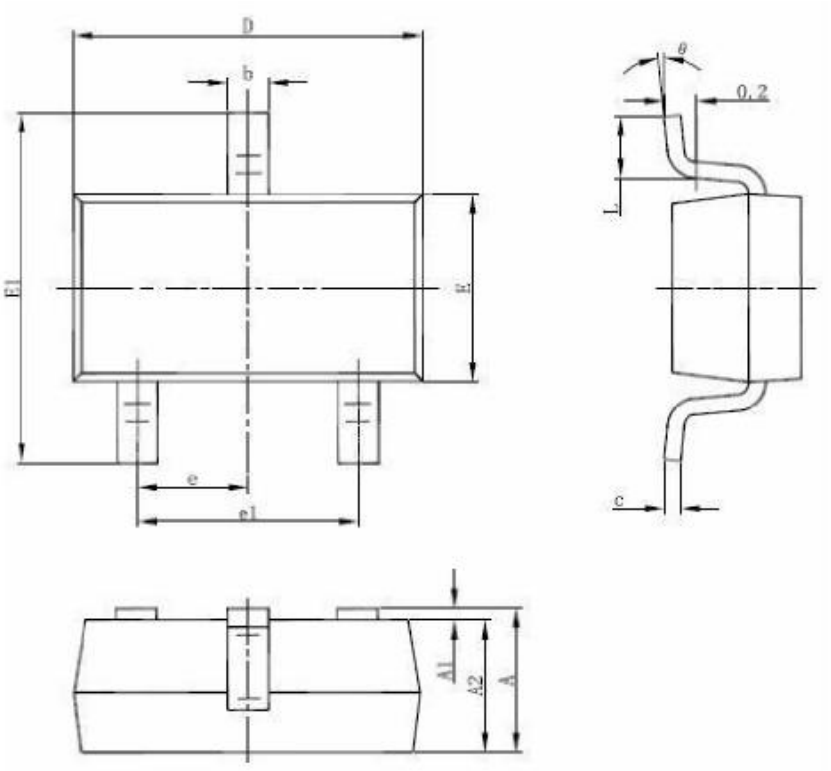


Fig.11 Unclamped Inductive Waveform

Package Dimensions

- SOT23-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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