General Description

The MY130N10P is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

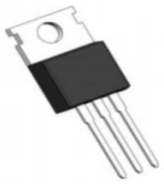
The MY130N10P meet the RoHS and Green Product requi「ement, 100% EAS guaranteed with full function reliability approved.

Features

V_{DSS}	100	V
I_D	147	A
$R_{DS(ON)}$(atV_{GS} =10V)	4.7	mΩ
$R_{DS(ON)}$(atV_{GS} =8V)	5.1	mΩ

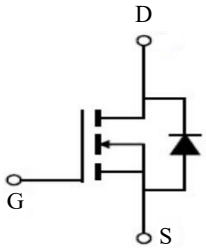
Application

- Switch Mode Power Supplies
- Power Management in Inverter System
- Battery Management System



TO-220

TO-263



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY130N10P	TO-220	130N10P	1000

ABSOLUTE RATINGS (Tc=25℃)

Parameter	Symbol	Value	Unit
		MY130N10	
Drain-Source Voltage	V_{DS}	100	V
Drain Current -continuous *	I_D (Tc=25℃) (Silicon Limited)	147	A
	I_D (Tc=25℃) (Package Limited)	120	A
	I_D (Tc=100℃) (Silicon Limited)	93	A
Drain Current – puls (note1)	I_{DM}	588	A
Gate-Source Voltage	V_{GS}	±20	V
Single Pulsed Avalanche Energy (note2)	E_{AS}	288	mJ
Avalanche Current (note 1)	I_{AR}	24	A
Repetitive Avalanche Current (note 1)	E_{AR}	35	mJ
Peak Diode Recovery dv/dt (note 3)	dv/dt	5.0	V/ns
Power Dissipation	P_D (TC=25℃)	173.6	W
	-Derate above 25℃	1.39	W/℃
Operating and StorageTemperatureRange	T_J, T_{STG}	-55+150	℃
Maximum Lead Temperature for Soldering Purposes	T_L	260	℃

Electrical Characteristics at T_j=25 ℃ unless otherwise specified

项目 Parameter	符号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最大 Max	单位 Units
关态特性 **Off –Characteristics**						
漏一源击穿电压 Drain-Source Voltage	BVDSS	ID=250μA, VGS=0V	100	-	-	V
击穿电压温度特性 Breakdown Voltage Temperature Coefficient	ΔBVDSS/Δ TJ	ID=250μA, referenced to 25℃	-	0.1	-	V/℃
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	IDSS	VDS=100V,VGS=0V, Tc=25℃	-	-	1	μA
		VDS=80V, Tc=125℃	-	-	100	μA
栅极体漏电流 Gate-body leakage current	IGSS（F/R）	VDS=0V, VGS =±20V	-	-	±100	nA
通态特性 **On-Characteristics**						
阈值电压 Gate Threshold Voltage	VGS(th)	VDS = VGS , ID=250μA	2.0	-	4.0	V
静态导通电阻 Static Drain-Source On-Resistance	RDS(ON)	VGS =10V , ID=50A	-	4.7	5.4	mΩ
正向跨导 Forward Transconductance	gfs	VDS = 10V, ID=50A（note 4）	-	75	-	S
动态特性 **Dynamic Characteristics**						
栅电阻 Gate Resistance	Rg	f=1.0MHz,VDS OPEN	-	1.6	-	Ω
输入电容 Input capacitance	Ciss	VDS=50V, VGS =0V, f=1.0MHz	-	5100	-	pF
输出电容 Output capacitance	Coss		-	878	-	
反向传输电容 Reverse transfer capacitance	Crss		-	75	-	
开关特性 **Switching Characteristics**						
延迟时间 Turn-On delay time	td(on)	VDD=50V, ID=50A, RG=5Ω VGS =10V （note 4，5）	-	24	-	ns
上升时间 Turn-On rise time	tr		-	21	-	ns
延迟时间 Turn-Off delay time	td(off)		-	50	-	ns
下降时间 Turn-Off Fall time	tf		-	27	-	ns
栅极电荷总量 Total Gate Charge	Qg	VDS =50V , ID=50A , VGS =10V （note 4，5）	-	74	-	nC
栅一源电荷 Gate-Source charge	Qgs		-	25	-	nC
栅一漏电荷 Gate-Drain charge	Qgd		-	14	-	nC
漏一源二极管特性及最大额定值 **Drain-Source Diode Characteristics and Maximum Ratings**						
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current	IS		-	-	147	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	ISM		-	-	588	A
正向压降 Drain-Source Diode Forward Voltage	VSD	VGS=0V, IS=50A	-	-	1.2	V
反向恢复时间 Reverse recovery time	trr	VGS=0V, IS=50A ,dIF/dt=100A/μs (note 4)	-	66	-	ns
反向恢复电荷 Reverse recovery charge	Qrr		-	150	-	nC

Typical Characteristics

热特性 THERMAL CHARACTERISTIC

项目 Parameter	符号 Symbol	P/S130N10	单位 Unit
结到管壳的热阻 Thermal Resistance, Junction to Case	Rth(j-c)	0.72	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	Rth(j-A)	62.5	℃/W

注释：
1：脉冲宽度由最高结温限制
2：L=1mH, I_{AS}=24A, V_{DD}=50V, R_G=25 Ω,起始结温 T_J=25℃
3：I_{SD} ≤147A,di/dt ≤300A/μs,V_{DD}≤BV_{DSS},起始结温 T_J=25℃
4：脉冲测试：脉冲宽度 ≤300μs,占空比≤2%
5：基本与工作温度无关

Notes:
1：Pulse width limited by maximum junction temperature
2：L=1mH, I_{AS}=24A, V_{DD}=50V, R_G=25 Ω,Starting T_J=25℃
3：I_{SD} ≤147A,di/dt ≤300A/μs,V_{DD}≤BV_{DSS}, Starting T_J=25℃
4：Pulse Test：Pulse Width ≤300μs,Duty Cycle≤2%
5：Essentially independent of operating temperature

Figure 1. Safe Operating Area

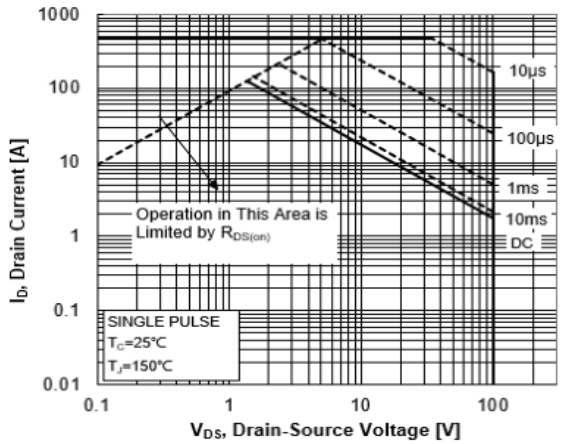


Figure 2. Maximum Power Dissipation vs Case Temperature

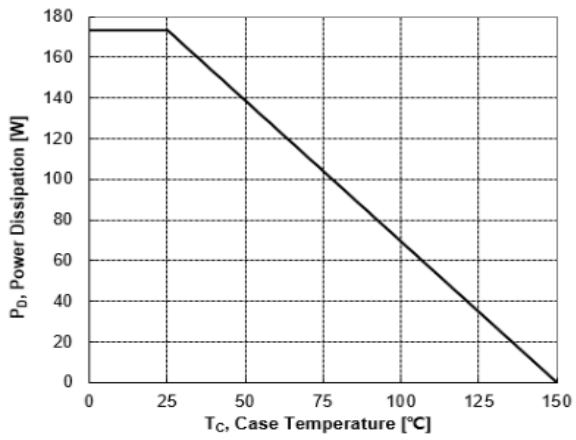


Figure 3. Maximum Continuous Drain Current vs Case Temperature

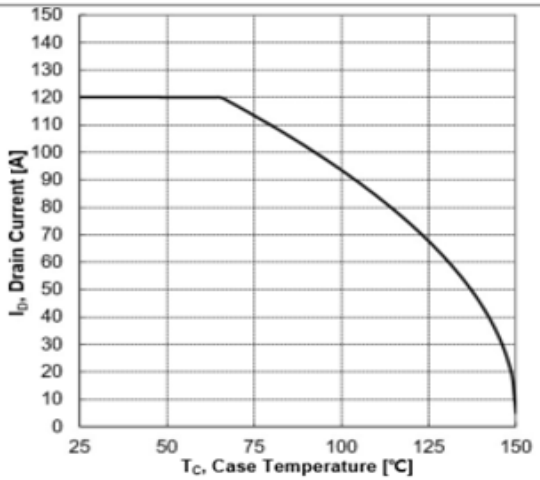


Figure 4. Typical Output Characteristics

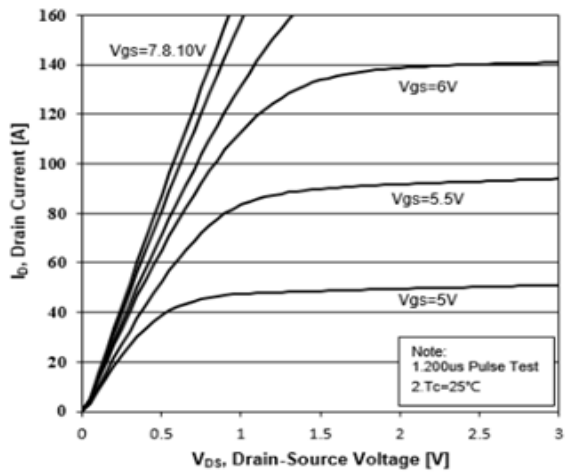


Figure 5. Transient Thermal Impedance

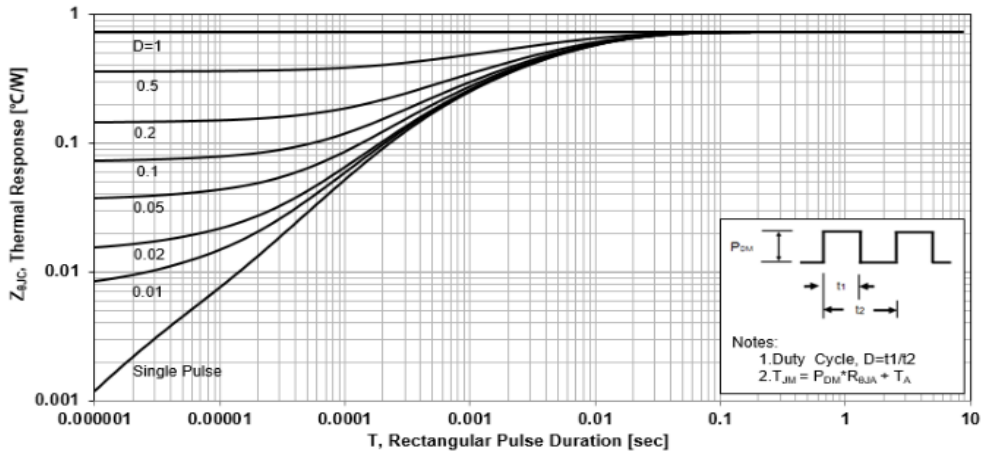


Figure 6. Typical Transfer Characteristics

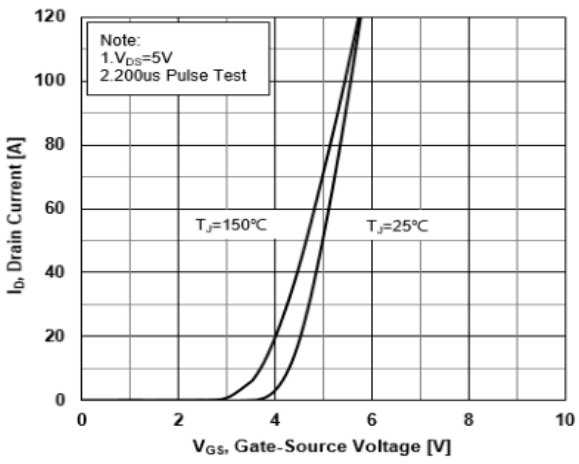


Figure 7. Source-Drain Diode Forward Characteristics

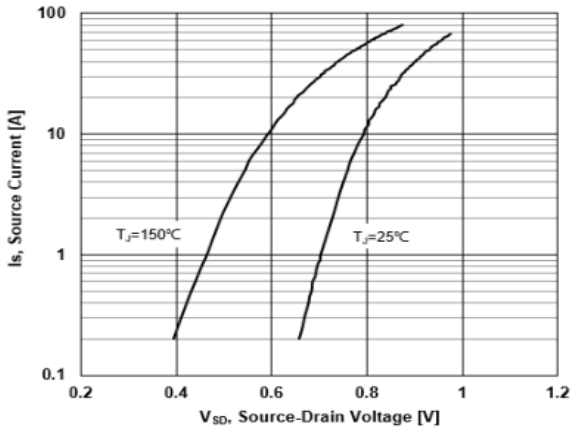


Figure 8. Drain-Source On-Resistance vs Drain Current

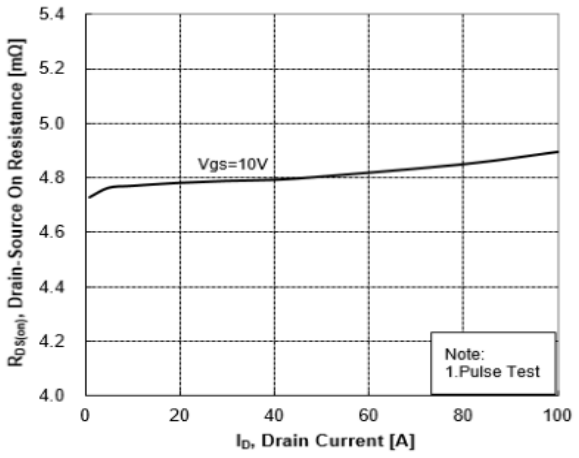


Figure 9. Normalized On-Resistance vs Junction Temperature

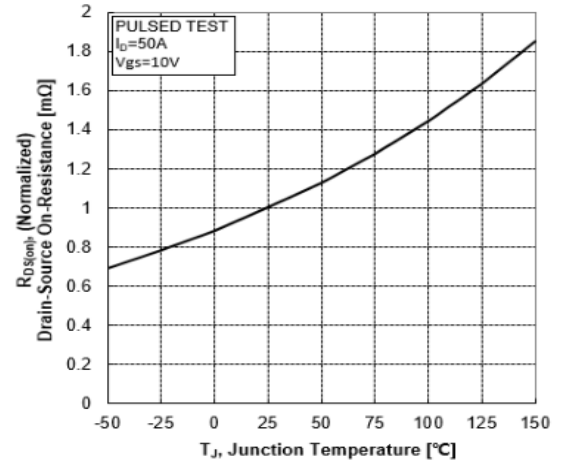


Figure 10. Normalized Threshold Voltage vs Junction Temperature

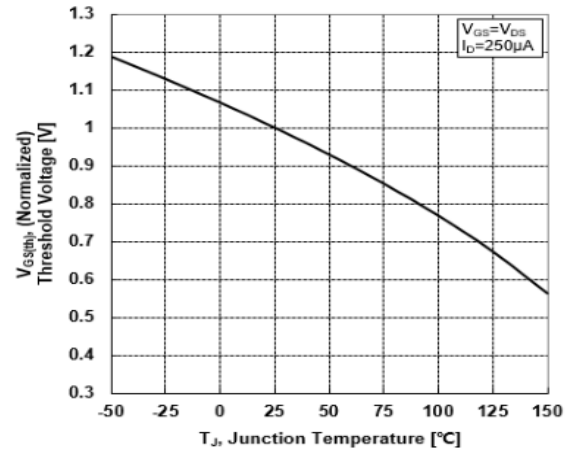
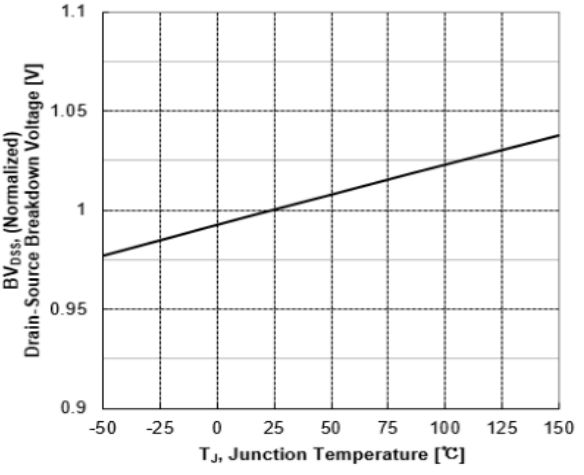
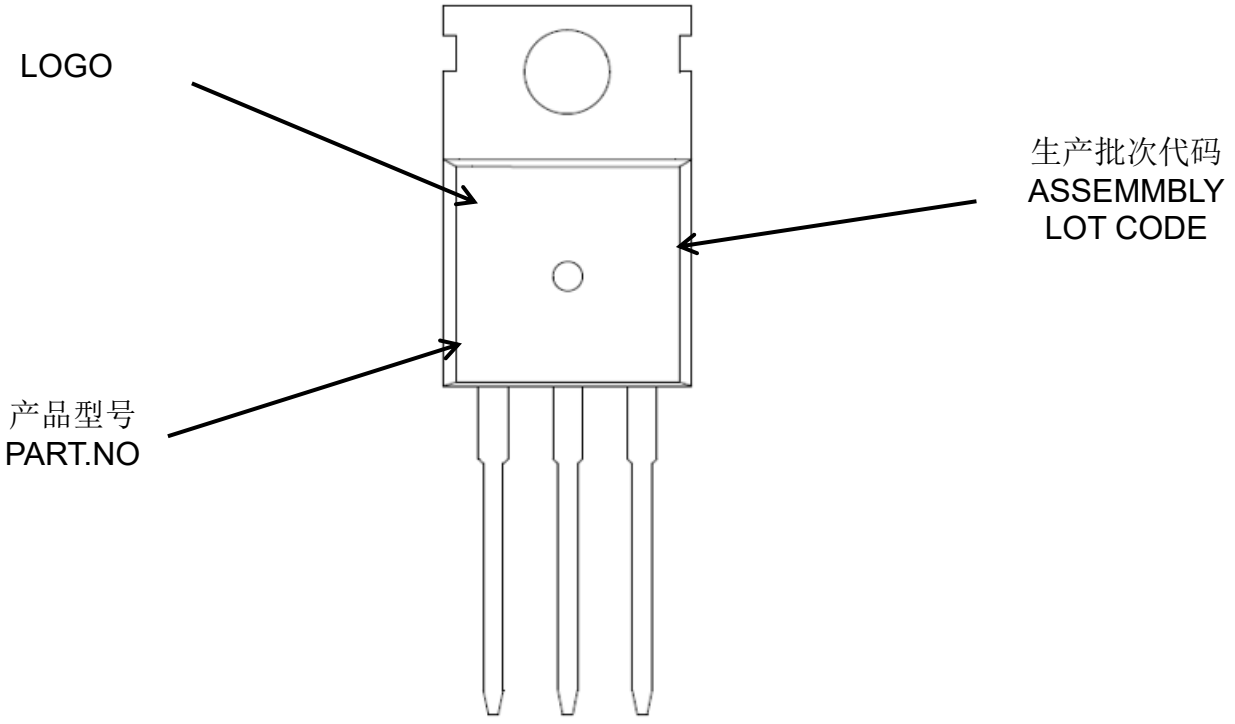


Figure 11. Normalized Breakdown Voltage vs Junction Temperature

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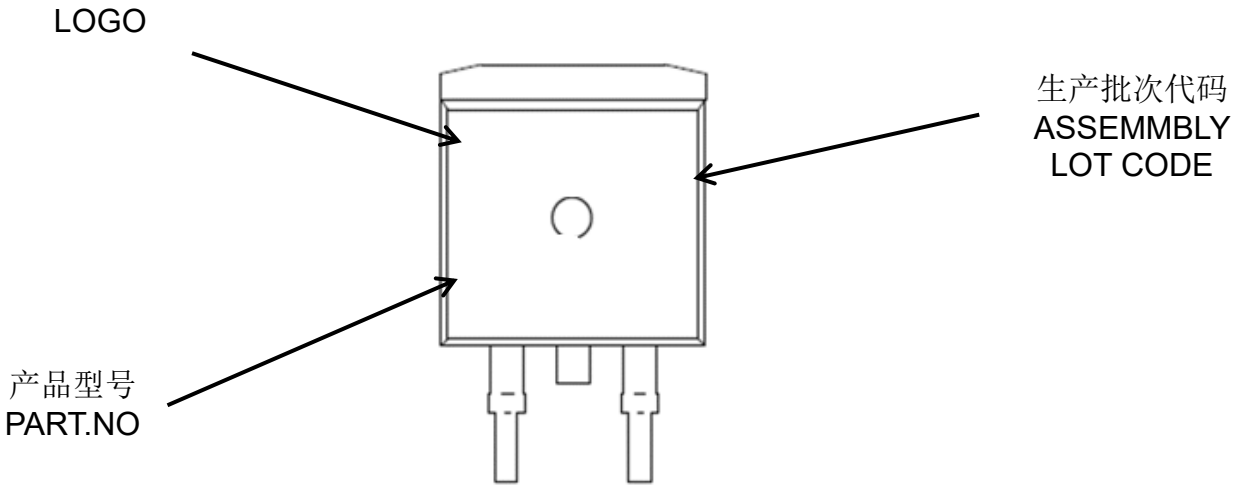
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