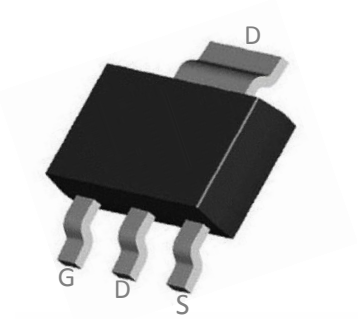
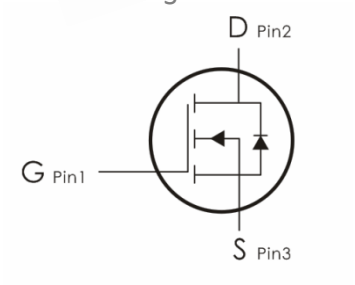
Description：

This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.





Features：

1) V_{DS}=100V,I_D=6A,$R_{DS(ON)}$<120m Ω @V_{GS}=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.

Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
TH130NG-F	H130N-F	SOT-223	4000 pcs/Reel

Absolute Maximum Ratings：(T_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current-T_C=25℃	6	A
I_{DM}	Pulsed Drain Currentt(Note 1)	18	
P_D	Power Dissipation	2.4	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance Junction to mbient(Note 2)	52	℃/W

Electrical Characteristics: (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=100V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics(Note 3)						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1	1.7	3	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=3A	---	112	120	mΩ
		V_{GS}=4.5V,I_D=2A	---	120	145	
G_{FS}	Forward Transconductance	V_{DS}=5V , I_D=3A	---	11	---	S
Dynamic Characteristics(Note 4)						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	600	978	pF
C_{oss}	Output Capacitance		---	38	---	
C_{rss}	Reverse Transfer Capacitance		---	24	---	
Switching Characteristics(Note 4)						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=50V,I_D=1A,R_G=3.3Ω V_{GS}=10V	---	7	---	ns
t_r	Rise Time		---	5	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	16	---	ns
t_f	Fall Time		---	6	---	ns
Q_g	Total Gate Charge	V_{GS}=10, V_{DS}=80V, I_D=3A	---	12	20	nC
Q_{gs}	Gate-Source Charge		---	2.2	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	2.5	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Drain Diode Forward Voltage(Note 3)	V_{GS}=0V,I_S=2A,T_J=25℃	---	---	1.2	A
Trr	Reverse Recovery Time	I_S=3A , V_{GS}=0V dI/dt=100A/μs	---	22	---	A
Qrr	Reverse Recovery Charge		---	---	---	A
I_D	Continuous Drain Current-T_C=25℃	VD=VG=0V	---	6	---	A
I_{DM}	Pulsed Drain Currentt(Note 1)		---	18	---	

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to product

Typical Characteristics: (T$_C$=25℃ unless otherwise noted)

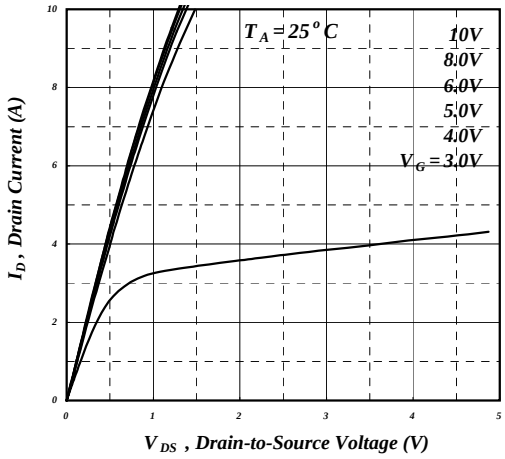


Fig 1. Typical Output Characteristics

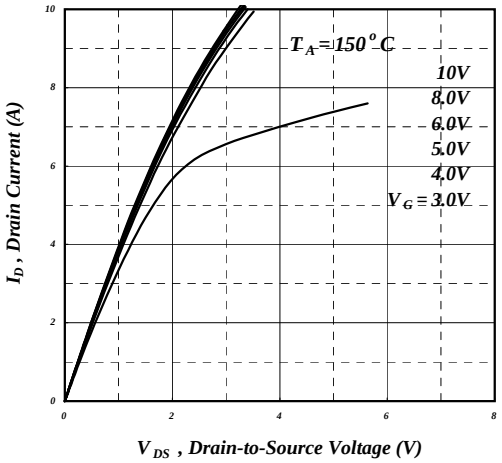


Fig 2. Typical Output Characteristics

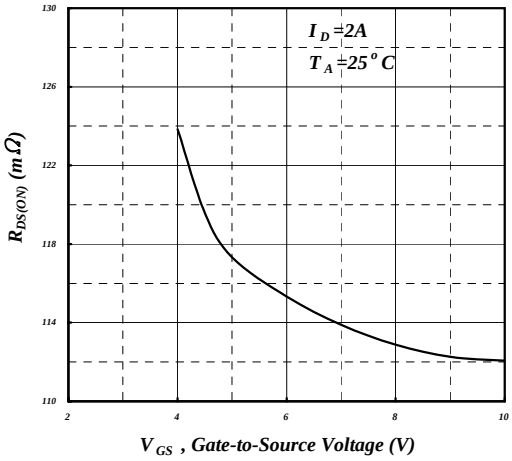


Fig 3. On-Resistance v.s. Gate Voltage

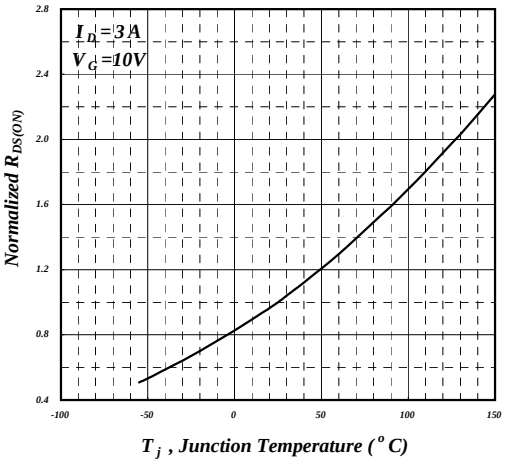


Fig 4. Normalized On-Resistance v.s. Junction Temperature

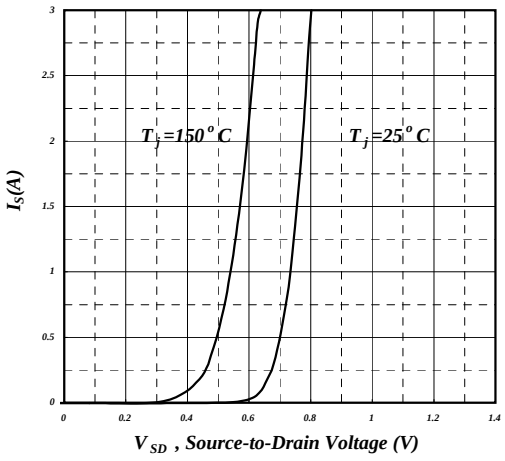


Fig 5. Forward Characteristic of Reverse Diode

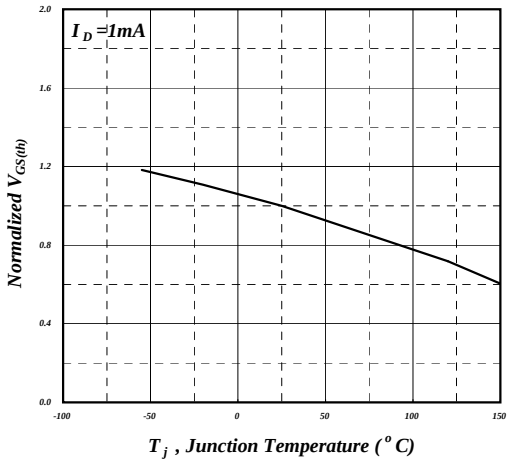


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

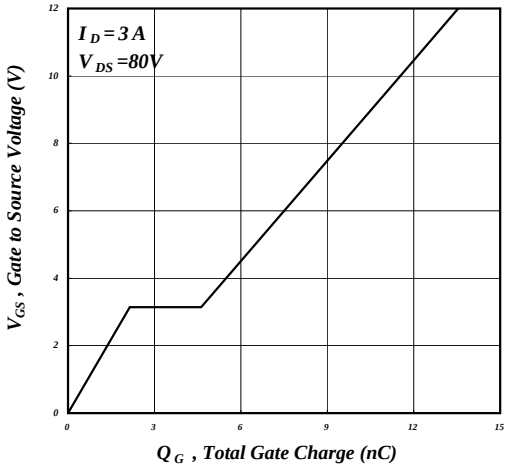


Fig 7. Gate Charge Characteristics

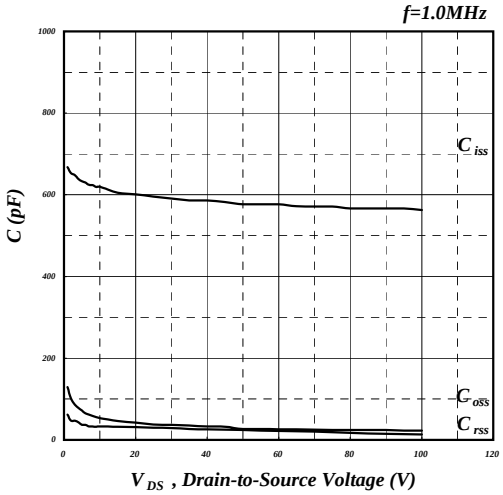


Fig 8. Typical Capacitance Characteristics

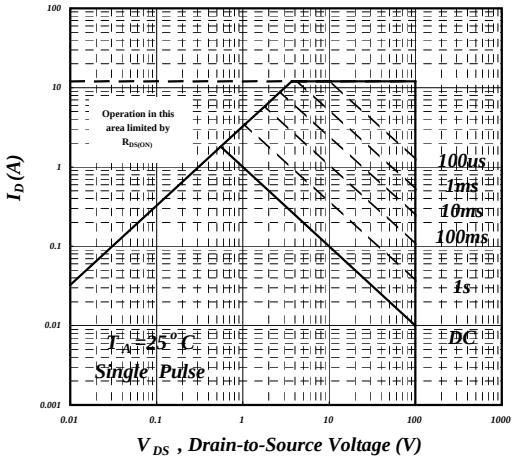


Fig 9. Maximum Safe Operating Area

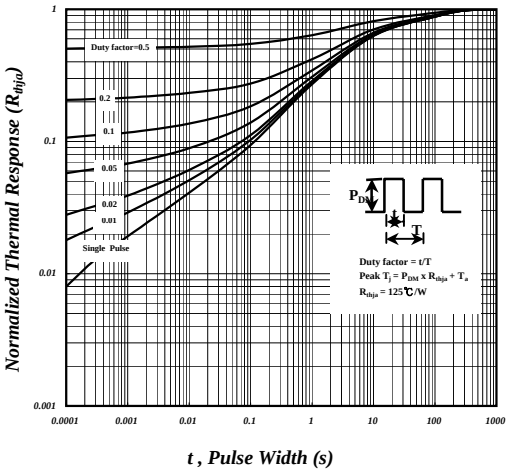


Fig 10. Effective Transient Thermal Impedance

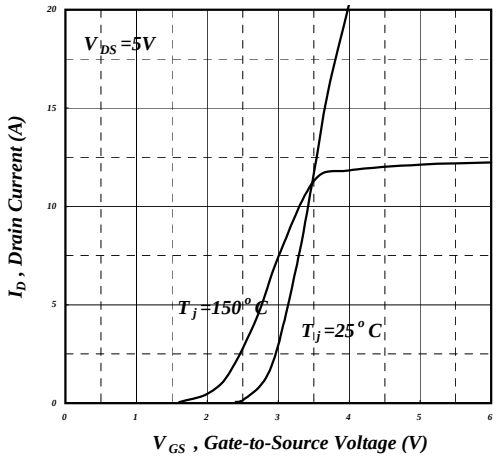


Fig 11. Transfer Characteristics

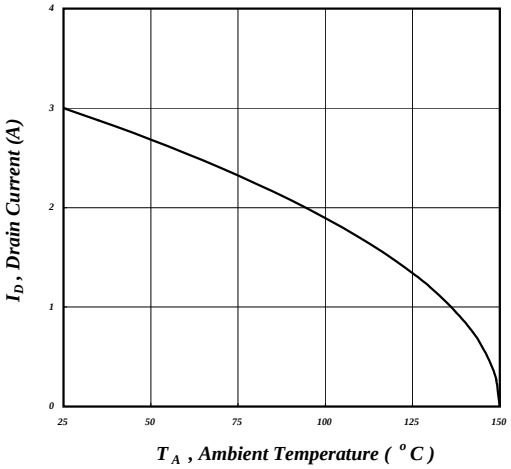


Fig 12. Drain Current v.s. Ambient Temperature

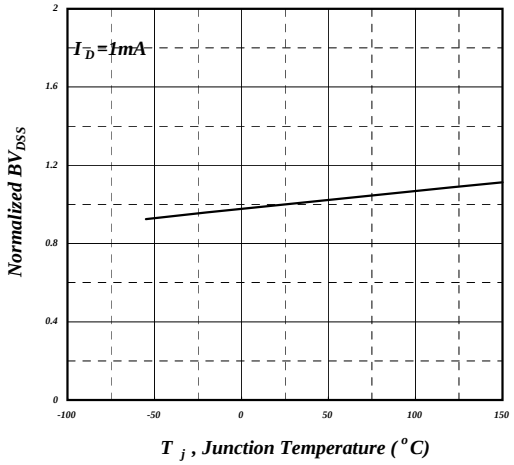


Fig 13. Normalized BV DSS v.s. Junction Temperature

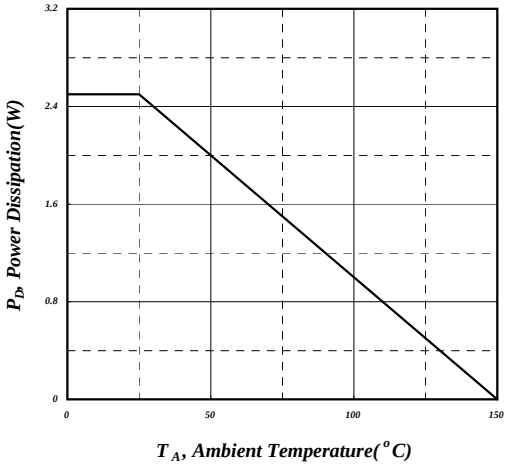


Fig 14. Total Power Dissipation

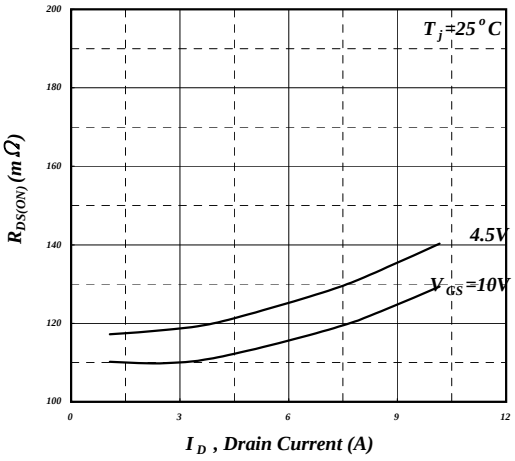
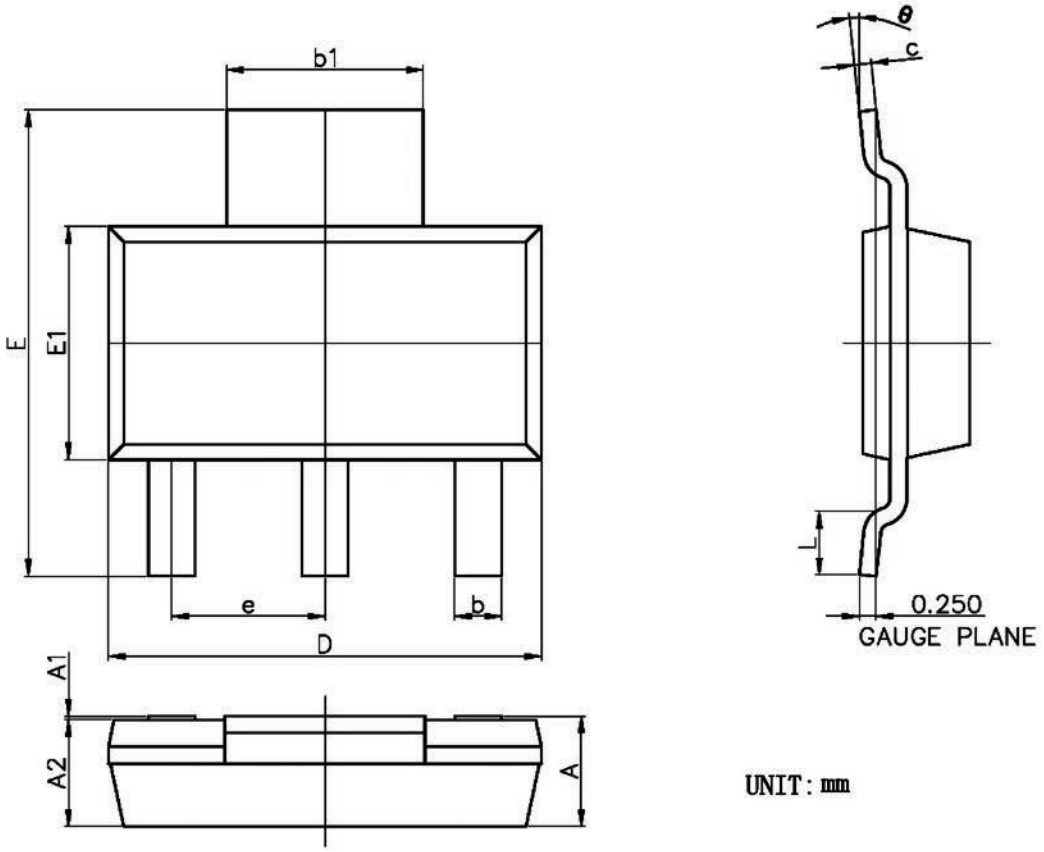


Fig 15. Typ. Drain-Source on State Resistance

Sot-223Package Outline Data

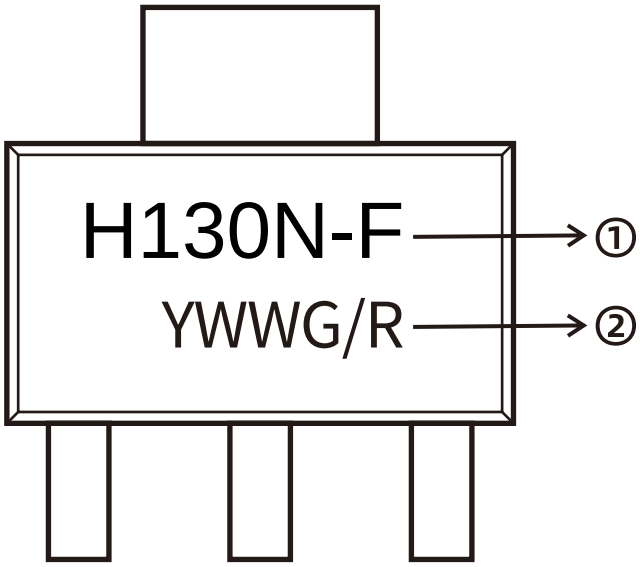


UNIT: mm

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	——	1.800	——	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300(BSC)		0.091(BSC)	
L	0.750	——	0.030	——
θ	0°	10°	0°	10°

Marking Information：

①: Part NO.
②: Date Code (YWWG / R)
Y: Year Code , last digit of the year
WW : Week Code (01-53)
G/R: G(Green) /R(Lead Free)



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