Descriptions

This30V 5.8A N-Channel MOSFET in a SOT-23-3 Plastic Package.

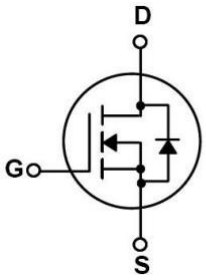
Features

- V_{DS} (V) = 30V
- I_D = 5.8 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 32mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 36mΩ (V_{GS} = 4.5V)
- $R_{DS(ON)}$ < 56mΩ (V_{GS} = 2.5V)
- Halogen-Free Product.

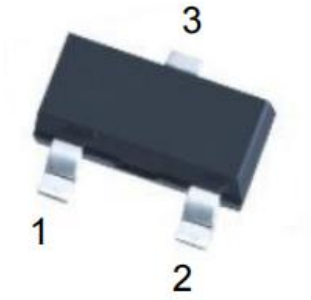
Applications

This device is suitable for use as a load switch or in PWM applications.

Equivalent Circuit



Pinning



PIN1：Gate PIN 2：Source PIN 3：Drain

Absolute Maximum Ratings(Ta=25℃)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Drain Current – Continuous	I_D	5.8	A
Drain Current- Continuous	I_D(T_a=70℃)	4.9	A
Pulsed Drain Current	I_{DM}	30	A
Gate-Source Voltage	V_{GS}	±12	V
Total Power Dissipation	P_D	1.4	W
Total Power Dissipation	P_D(T_a=70℃)	1.0	W
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to 150	℃

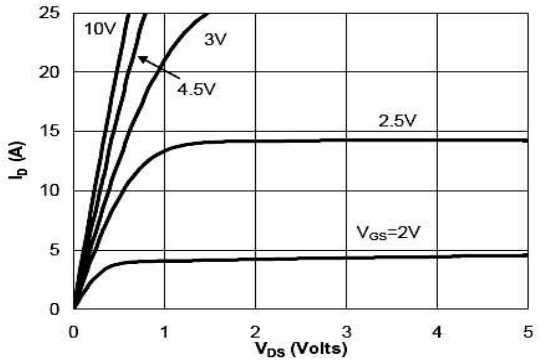
Electrical Characteristics(Ta=25℃)

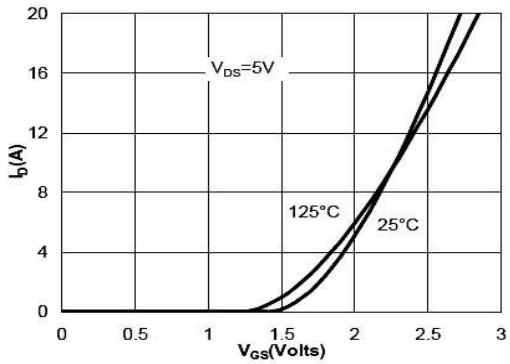
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V V_{GS}=0V			1	μA
		V_{DS}=24V V_{GS}=0V T_J=55℃			5	μA
Gate–Body Leakage.	I_{GSS}	V_{GS}=±12V V_{DS}=0V			±0.1	μA
On–State Drain Current	$I_{D(on)}$	V_{GS}=4.5V V_{DS}=5V	30			A
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	0.65	1.1	1.45	V
Static Drain–Source On–Resistance	$R_{DS(on)(1)}$	V_{GS}=10V I_D=5.8A		29	32	mΩ
	$R_{DS(on)(2)}$	V_{GS}=10V I_D=5.8A T_J=125℃			39	
	$R_{DS(on)(3)}$	V_{GS}=4.5V I_D=5A		32	36	
	$R_{DS(on)(4)}$	V_{GS}=2.5V I_D=4A		40	56	
Forward Transconductance	g_{FS}	V_{DS}=5V I_D=5A	10	15		S
Drain–Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1A		0.77	1	V
Input Capacitance	C_{iss}	V_{DS}=15V V_{GS}=0V f=1MHz		823	1030	pF
Output Capacitance	C_{oss}			99		
Reverse Transfer Capacitance	C_{rss}			77		
Turn–On Delay Time	$t_{d(on)}$	V_{GS}=10V R_L=2.7Ω V_{DS}=15V R_{GEN}=3Ω		3.3	5	ns
Turn–On Rise Time	t_r			4.8	7	
Turn–Off Delay Time	$t_{d(off)}$			26.3	40	
Turn–Off Fall Time	t_f			4.1	6	

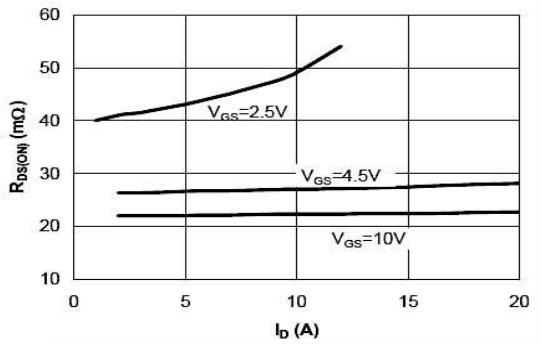
Electrical Characteristics(Ta=25℃)

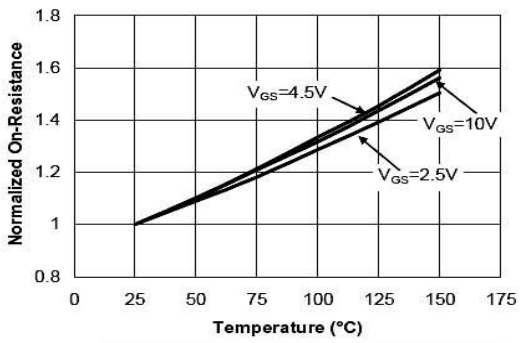
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	V_{DS}=15V V_{GS}=0V f=1MHz		823	1030	pF
Output Capacitance	C_{oss}			99		
Reverse Transfer Capacitance	C_{rss}			77		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V, f=1MHz		1.2	3.6	Ω
Total Gate Charge	Q_g	V_{GS}=4.5V, V_{DS}=15V, I_D=5.8A		9.7	12	nC
Gate Source Charge	Q_{gs}			1.6		
Gate Drain Charge	Q_{gd}			3.1		
Turn–On Delay Time	$t_{d(on)}$	V_{GS}=10V R_L=2.7Ω V_{DS}=15V R_{GEN}=3Ω		3.3	5	ns
Turn–On Rise Time	t_r			4.8	7	
Turn–Off Delay Time	$t_{d(off)}$			26.3	40	
Turn–Off Fall Time	t_f			4.1	6	
Body Diode Reverse Recovery Time	t_{rr}	I_F=5A dI/dt=100A/μs		16	20	ns
Body Diode Reverse Recovery Charge	Q_{rr}	I_F=5A dI/dt=100A/μs		8.9	12	nC

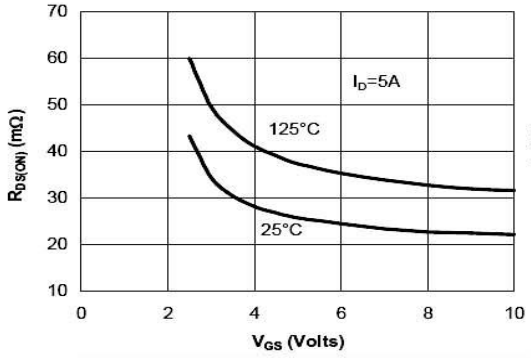
Electrical Characteristic Curve

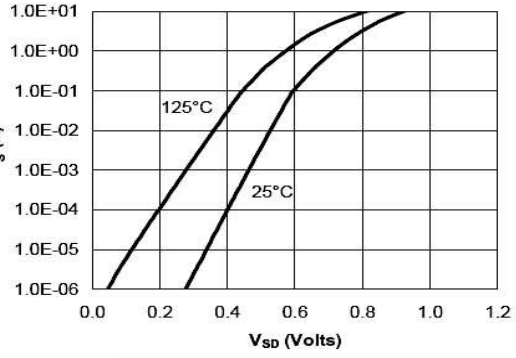


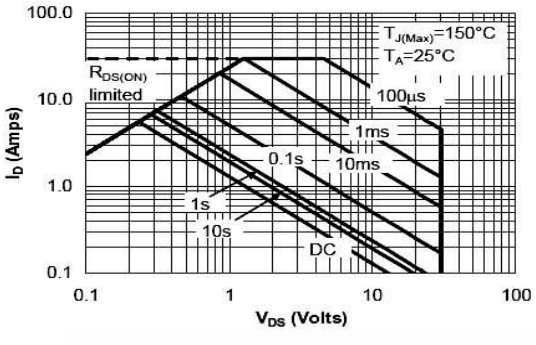


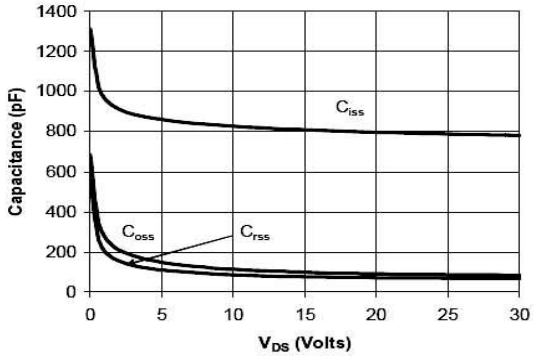




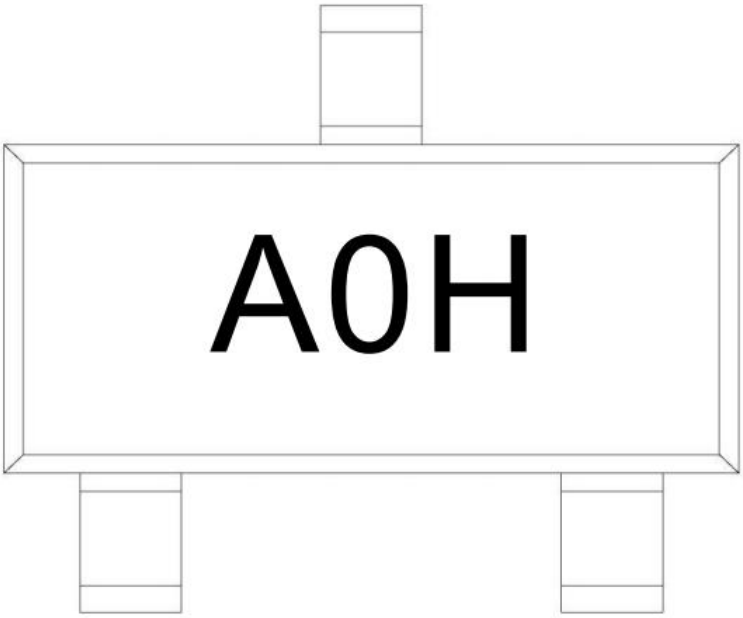








Marking Instructions



Note:

A0: Product Type Code.

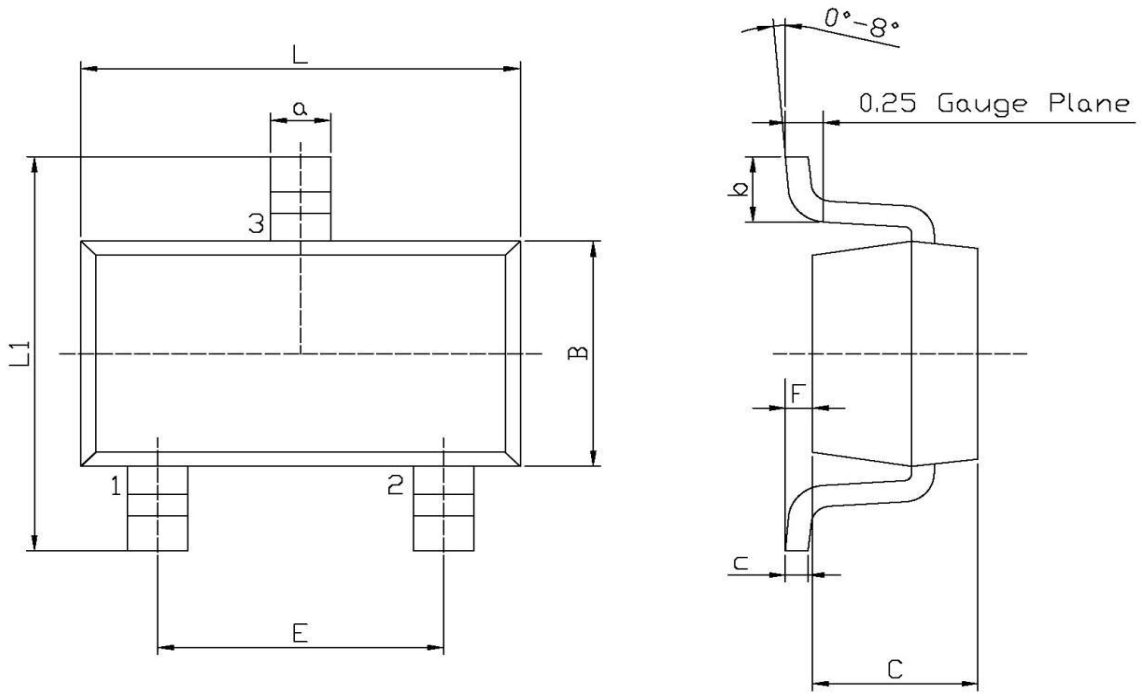
H: Company Code.

Packaging SPEC

REEL INFORMATION

Package Type	Units					Dimension (unit：mm³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT-23-3	3,000	10	30,000	4	120,000	7″ ×8	210×205×205	445×230×435

Package Outline Dimensions



Unit: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
L	2.82	3.02	a	0.35	0.50
B	1.50	1.70	c	0.10	0.20
C	0.90	1.30	b	0.35	0.55
L1	2.60	3.00	F	0	0.15
E	1.80	2.00			

SOT23-3