Descriptions

This -30V -4.1A P-Channel MOSFET in a SOT-23-3 Plastic Package.

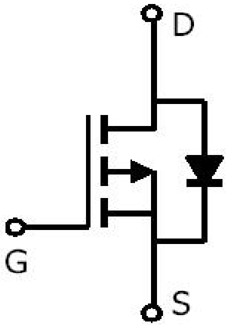
Features

- V_{DS} (V) = -30V
- I_D = -4.1 A
- $R_{DS(ON)} < 60m\Omega$ (V_{GS} = -10V)
- $R_{DS(ON)} < 85m\Omega$ (V_{GS} = -4.5V)
- Halogen-Free Product.

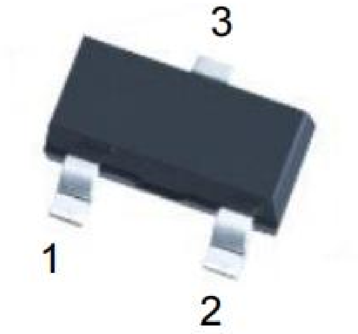
Applications

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	-4.1	A
Drain Current- Continuous	$I_D(T_a=70℃)$	-3.5	A
Pulsed Drain Current	I_{DM}	-20	A
Gate-Source Voltage	V_{GS}	±20	V
Total Power Dissipation	P_D	1.4	W
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to 150	℃
Thermal Resistance-Junction to Ambient (t≤10s)	$R_{θJA}$	90	℃/W
Thermal Resistance-Junction to Lead	$R_{θJL}$	80	

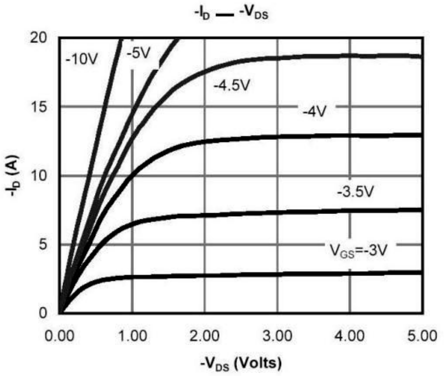
Electrical Characteristics(Ta=25℃)

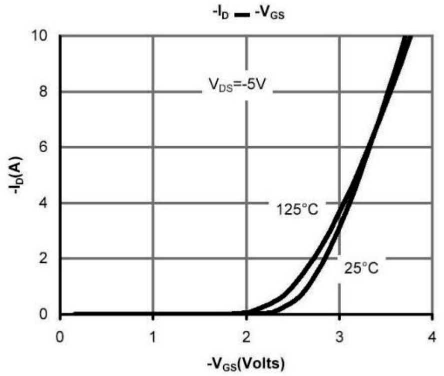
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250μA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-24V V_{GS}=0V			-1	μA
		V_{DS}=-24V V_{GS}=0V T_J=55℃			-5	μA
Gate–Body Leakage.	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±0.1	μA
On–State Drain Current	$I_{D(on)}$	V_{GS}=-4.5V V_{DS}=-5V	-10			A
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-1	-1.4	-3	V
Static Drain–Source On–Resistance	$R_{DS(on)1}$	V_{GS}=-10V I_D=-4.1A		54	60	mΩ
	$R_{DS(on)2}$	V_{GS}=-10V I_D=-4.1A T_J=125℃		57	73	
	$R_{DS(on)3}$	V_{GS}=-4.5V I_D=-3A		77	85	
Forward Transconductance	g_{FS}	V_{DS}=-5V I_D=-4A	5.5	8.2		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		700		pF
Output Capacitance	C_{oss}			120		
Reverse Transfer Capacitance	C_{rss}			75		

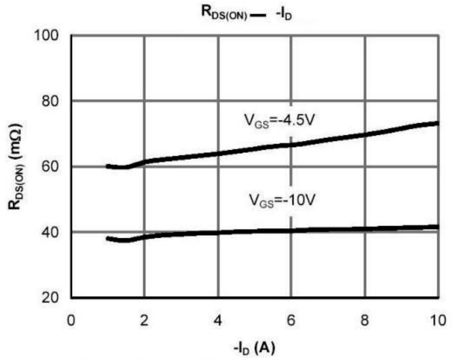
Electrical Characteristics(Ta=25℃)

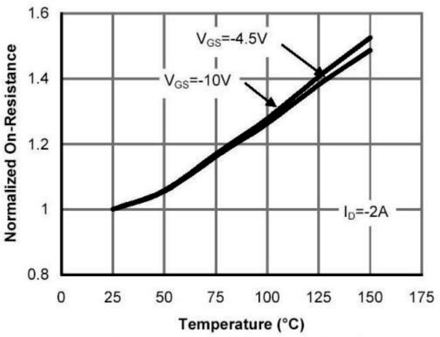
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	Q_g(10V)	V_{GS}=-10V, V_{DS}=-15V, I_D=-4.1A		9		nC
Total Gate Charge	Q_g(4.5V)			4.5		
Gate Source Charge	Q_{gs}			1.5		
Gate Drain Charge	Q_{gd}			2.1		
Turn–On Delay Time	$t_{d(on)}$	V_{GS}=-10V R_L=3.6Ω V_{DS}=-15V R_{GEN}=3Ω		8.6		ns
Turn–On Rise Time	t_r			5		
Turn–Off Delay Time	$t_{d(off)}$			28.2		
Turn–Off Fall Time	t_f			13.5		
Body Diode Reverse Recovery Time	t_{rr}	I_F=-4.1A, dI/dt=100A/μs		13		ns
Body Diode Reverse Recovery Charge	Q_{rr}	I_F=-4.1A, dI/dt=100A/μs		5.5		nC

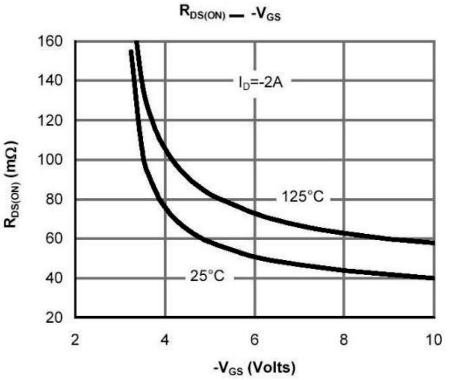
Electrical Characteristic Curve

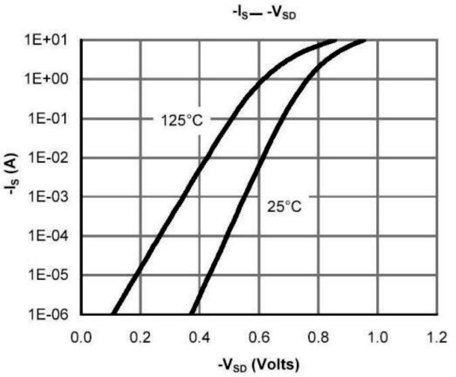


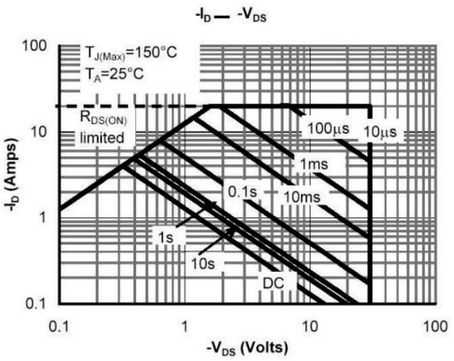


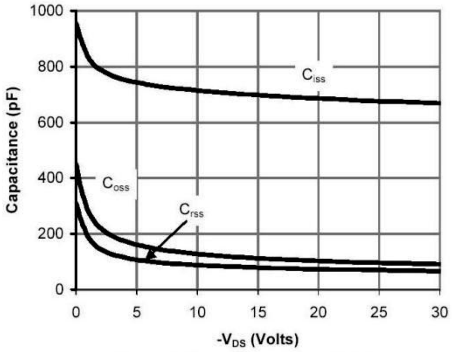




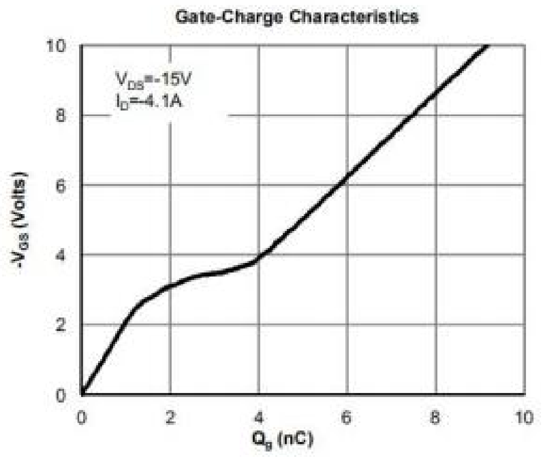


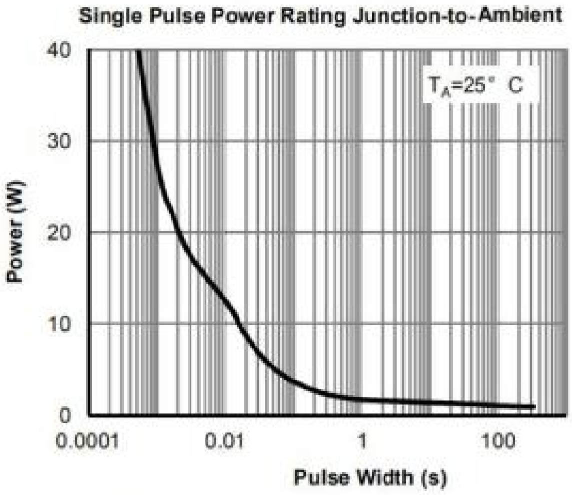


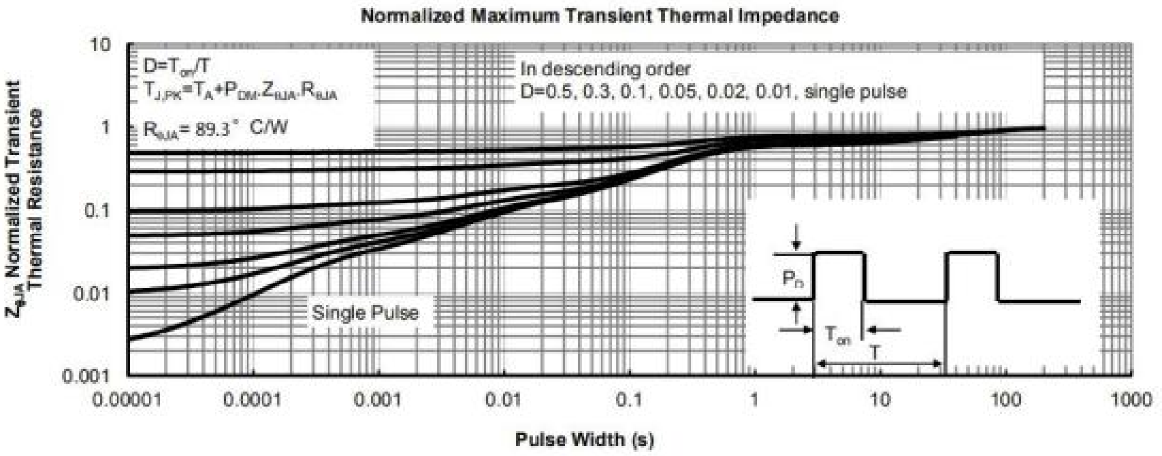




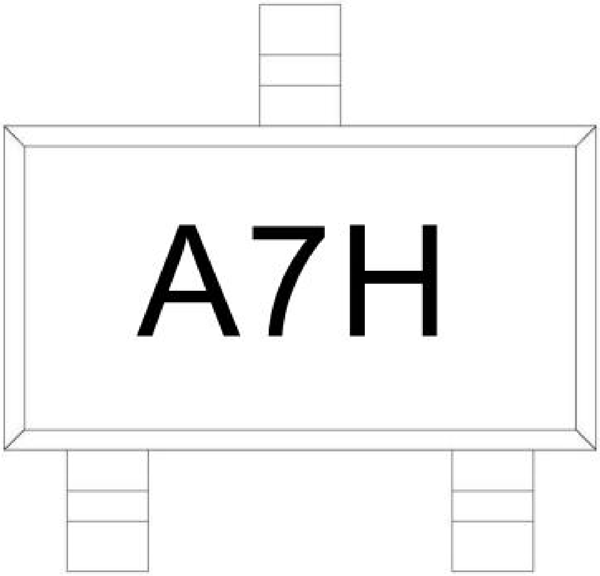
Electrical Characteristic Curve


Gate-Charge Characteristics


Single Pulse Power Rating Junction-to-Ambient


Normalized Maximum Transient Thermal Impedance

Marking Instructions



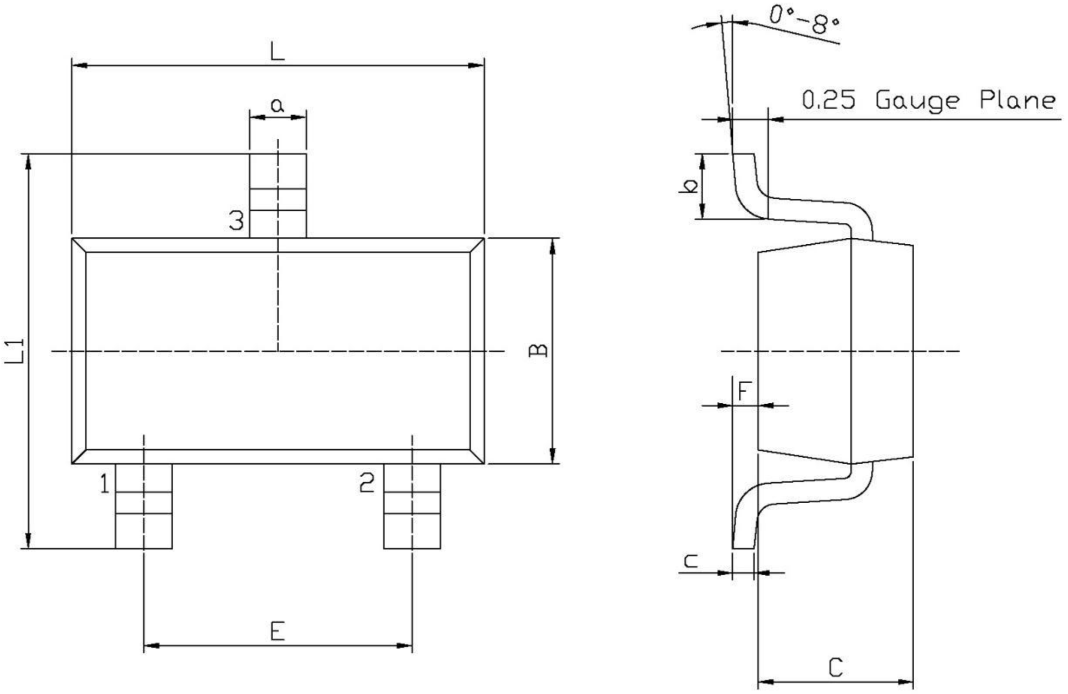
Note:
A7: Product Type
H: Company Code

Packaging SPEC

REEL INFORMATION

Package Type	Units					Dimension (unit：mm^3)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT23-3	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