

Description

This 100V 4A N-Channel MOSFET in a SOT-89 Plastic Package.

Applications

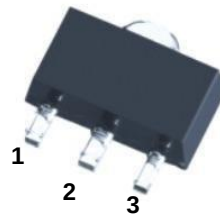
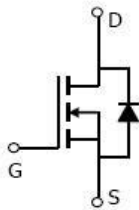
This device is suitable for use as a load switch or in PWM applications.

Features

- $V_{DS} (V) = 100V$
- $I_D = 4A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 115m\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 150m\Omega$ ($V_{GS} = 4.5V$)
- Halogen-free Product.

V_{DSS}	I_D
100V	4A

Equivalent Circuit & Pinning



PIN1: G

PIN 2: D

PIN 3: S

Marking

See Marking Instructions.

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Continuous Drain Current		I_D	4	A
Pulsed Drain Current		I_{DM}	16	A
Gate-Source Voltage		V_{GS}	± 20	V
Total Power Dissipation		P_D	2.0	W
Operating and Storage Junction Temperature Range		T_J, T_{STG}	-55 to 150	℃
Maximum Junction-to-Ambient	$t \leq 10s$	$R_{\theta JA}$	62.5	℃/W
Maximum Junction-to-Ambient	Steady-State		87	℃/W
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	55.5	℃/W

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V$ $V_{GS}=0V$			1	μA
		$V_{DS}=100V$ $V_{GS}=0V$			5	μA
		$T_J=55^\circ C$				
Gate-Body Leakage.	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1.2	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)(1)}$	$V_{GS}=10V$ $I_D=1A$		107	115	$m\Omega$
	$R_{DS(on)(2)}$	$V_{GS}=4.5V$ $I_D=1A$		140	150	
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1A$			1.2	V

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$		190		pF
Output Capacitance	C_{oss}			155		
Reverse Transfer Capacitance	C_{rss}			28		
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		0.8		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V,$ $I_D=4A$ $V_{DS}=50V,$		3.8		nC
Total Gate Charge	$Q_{g(4.5V)}$			1.8		
Gate Source Charge	Q_{gs}			0.8		
Gate Drain Charge	Q_{gd}			0.8		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $R_L=25\Omega$ $V_{DS}=50V$ $R_{GEN}=3\Omega$		5		ns
Turn-On Rise Time	t_r			3		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	t_f			3		

Electrical Characteristic Curve

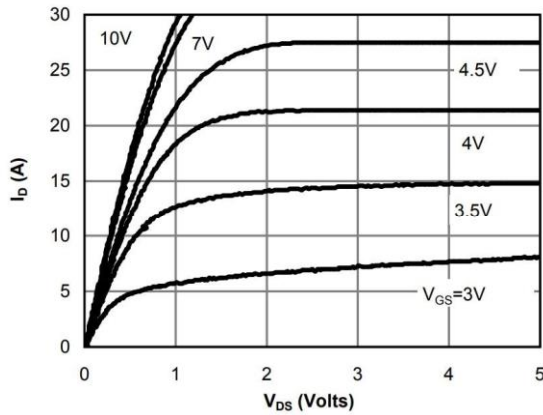


Figure 1: On-Region Characteristics

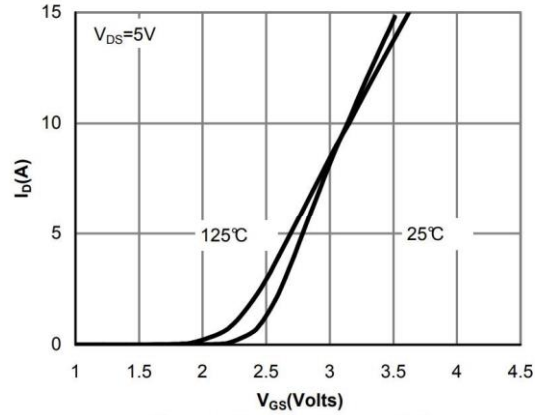


Figure 2: Transfer Characteristics

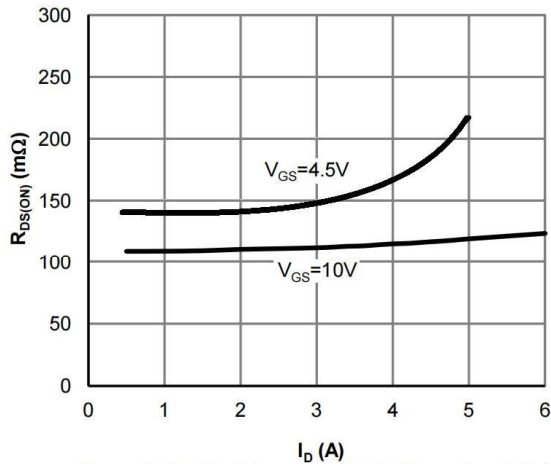


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

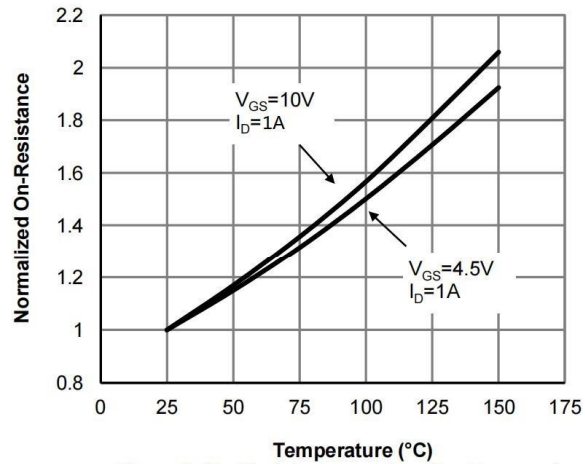


Figure 4: On-Resistance vs. Junction Temperature

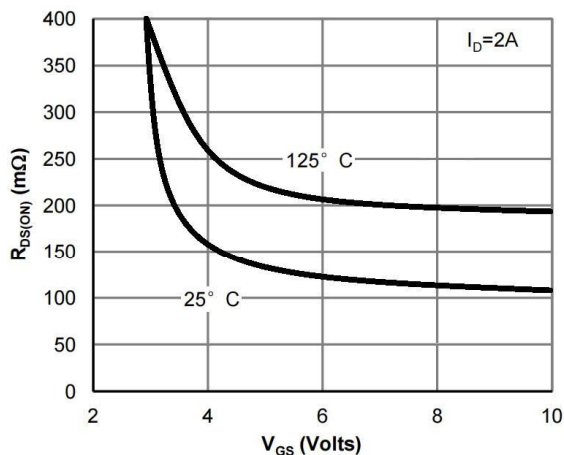


Figure 5: On-Resistance vs. Gate-Source Voltage

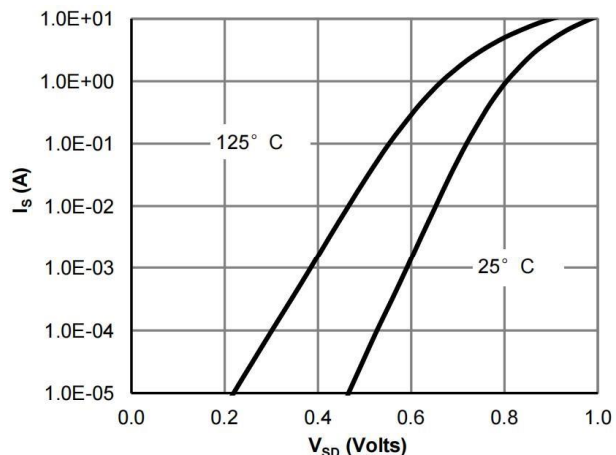


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

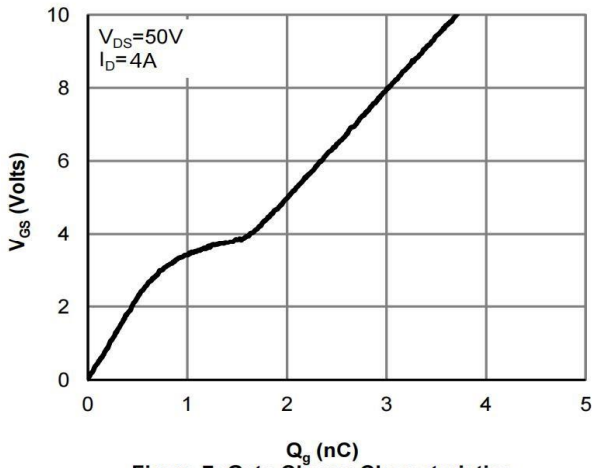


Figure 7: Gate-Charge Characteristics

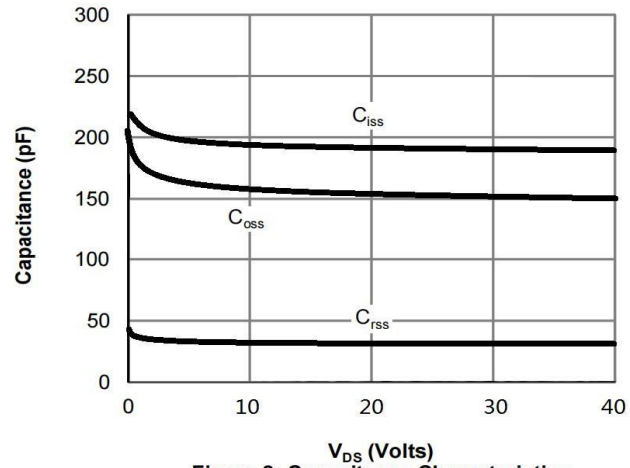


Figure 8: Capacitance Characteristics

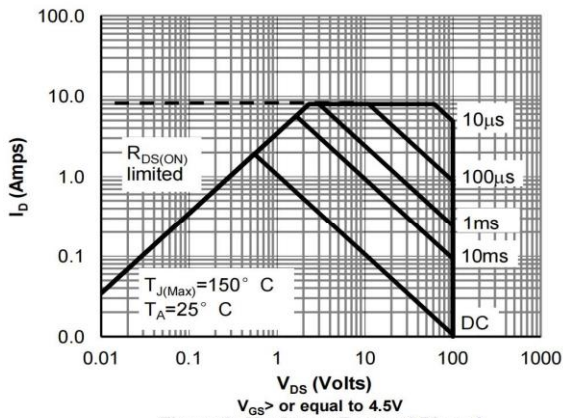


Figure 9: Maximum Forward Biased Safe Operating Area

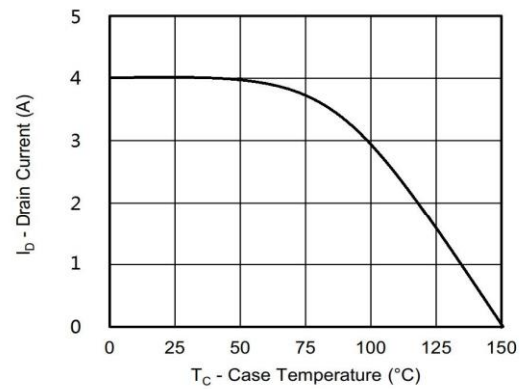


Figure 10: Maximum Continuous Drain Current vs Case Temperature

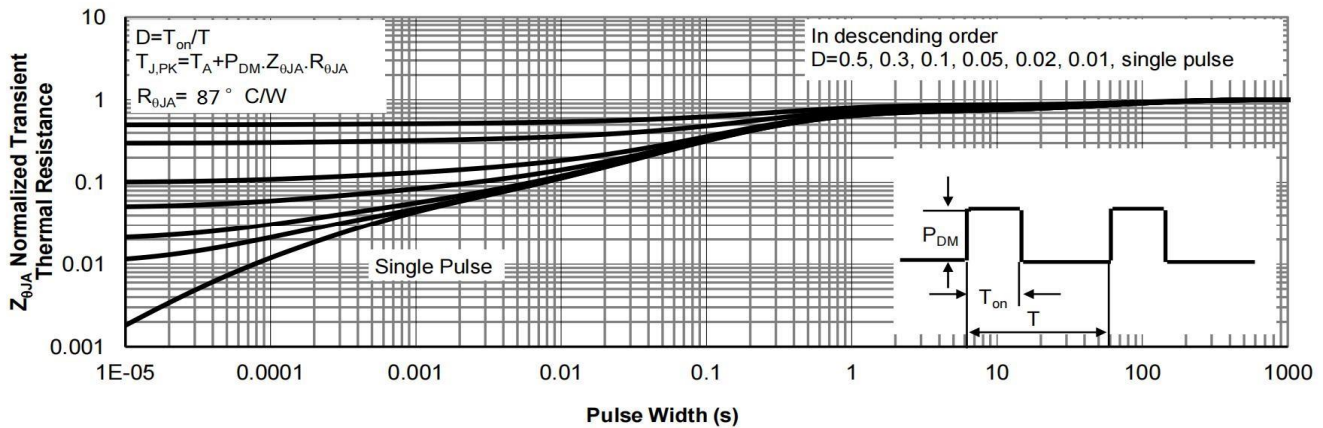
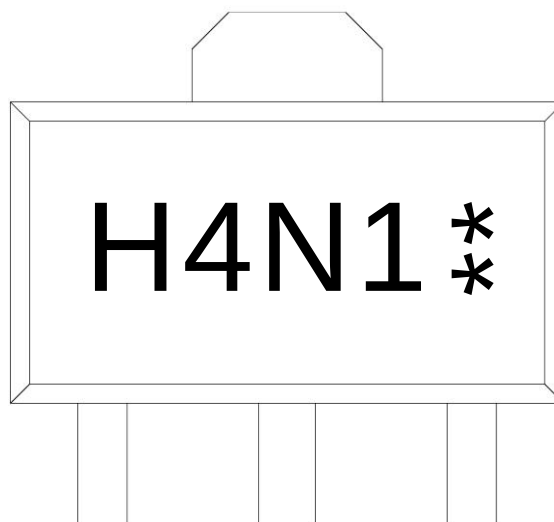


Figure 11: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

4N1: Product Type Code.

H: Company Code.

** : Lot No. Code, code change with Lot No.

Packaging SPEC.

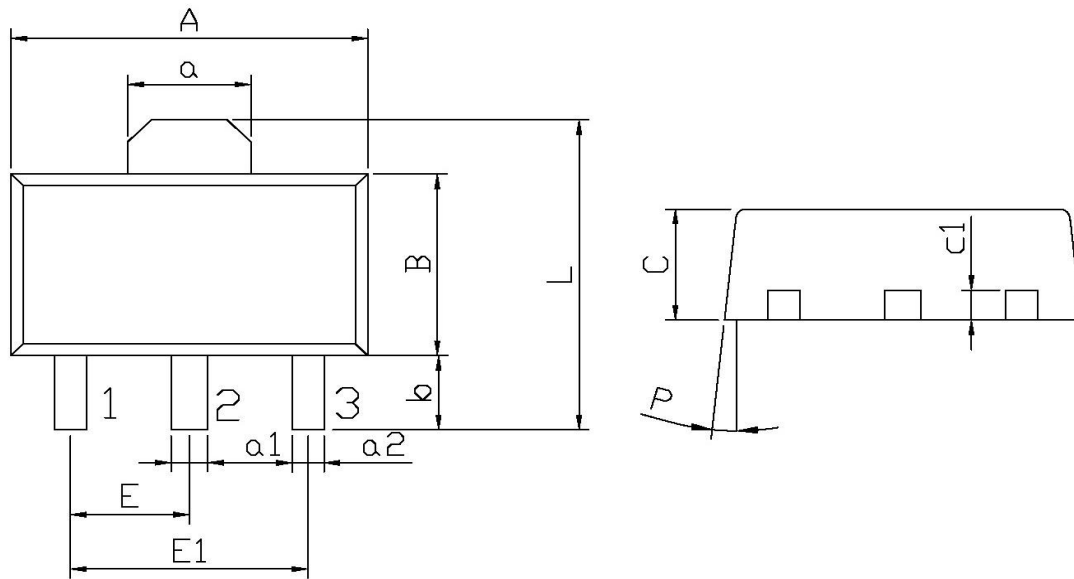
REEL INFORMATION

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
SOT-89	1,000	7	7,000	6	42,000	7" ×12	180×120×180	390×358×205

Package Outline Dimensions

SOT-89

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.4	4.7	a1	0.36	0.56
B	2.35	2.65	a2	0.30	0.50
L	3.878	4.478	C	1.40	1.70
a	1.45	1.65	c1	0.35	0.50
E	1.40	1.60	P	6°	
E1	2.80	3.20			
b	0.80	1.20			