Descriptions

This 20V 4.5A N-Channel MOSFET in a SOT23-3 Plastic Package.

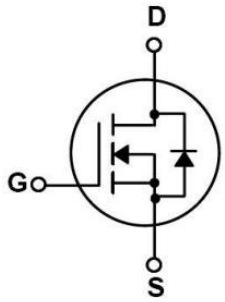
Features

- Low RDS(ON)
- SOT23-3 package
- Halogen-Free Product

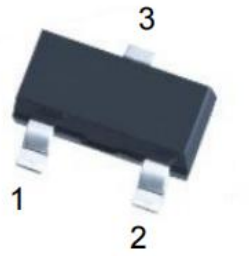
Applications

Battery management,High speed switch,low power DC to DC converter.

Equivalent Circuit



Pinning



PIN1：Gate　　PIN 2：Source　　PIN 3：Drain

Marking

Marking	A8H

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	±10	V
Drain Current – Continuous		I_D	4.5	A
Pulsed Drain Current		I_{DM}	12	A
Power Dissipation		P_D	1.4	W
Storage Temperature Range		T_{stg}	-55～150	℃
Maximum Junction-to-Ambient	t ≤ 10s	$R_{\theta JA}$	90	℃/W
Maximum Junction-to-Ambient	Steady-State		125	
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	80	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0	I_D=250μA	20	21.5		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0	V_{DS}=20V			1.0	μA
Gate–Body Leakage.	I_{GSS}	V_{GS}=±10V	V_{DS}=0V			±100	nA
Static Drain–Source On–Resistance	$R_{DS(on)1}$	V_{GS}=4.5V	I_D=4.5A		19	25	mΩ
	$R_{DS(on)2}$	V_{GS}=2.5V	I_D=4.0A		24	38	mΩ
Drain–Source Diode Forward Voltage	V_{SD}	V_{GS}=0V	I_D=1A			1.2	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=50μA	0.5	0.77	1.0	V
Input Capacitance	Ciss	V_{GS}=0V, f=1MHz	V_{DS}=10V		860		pF
Output Capacitance	Coss				800		
Reverse Transfer Capacitance	Crss				495		
Gate resistance	Rg	V_{GS}=0V, f=1MHz	V_{DS}=0V		4.9		Ω

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	Qg(10V)	V_{GS}=10V, V_{DS}=10V I_D=4.5A		12.5		
Total Gate Charge	Qg(4.5V)			6		nC
Gate Source Charge	Qgs			1		
Gate Drain Charge	Qgd			2		
Turn–On Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=10V R_{GEN}=3Ω R_L=1.7Ω		3		ns
Turn–On Rise Time	t_r			7.5		
Turn–Off Delay Time	$t_{d(off)}$			20		
Turn–Off Fall Time	t_f			6		

Electrical Characteristic Curve

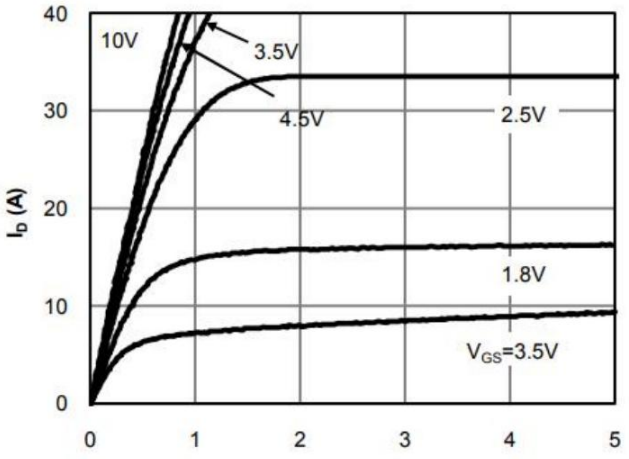


Fig 1: On-Region Characteristics

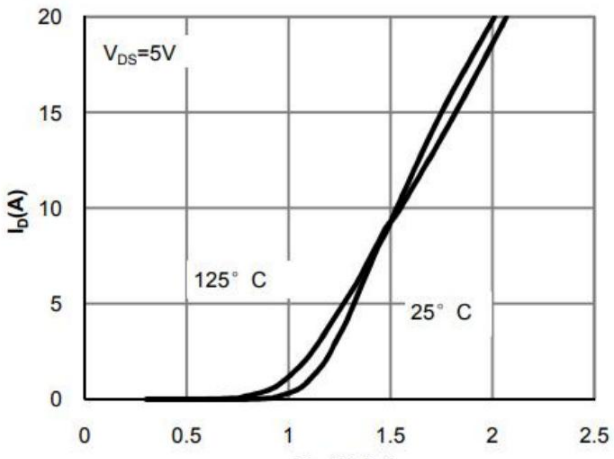


Figure 2: Transfer Characteristics

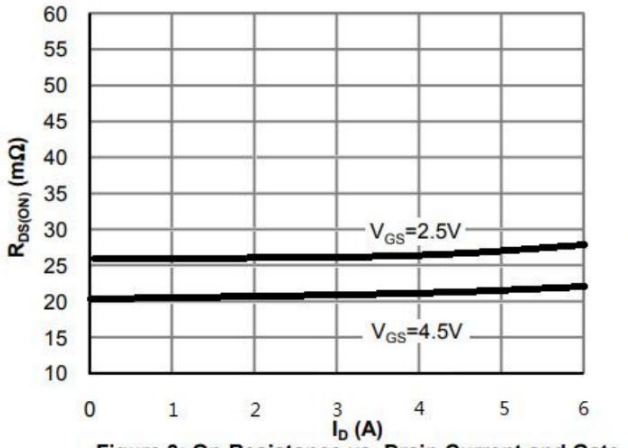


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

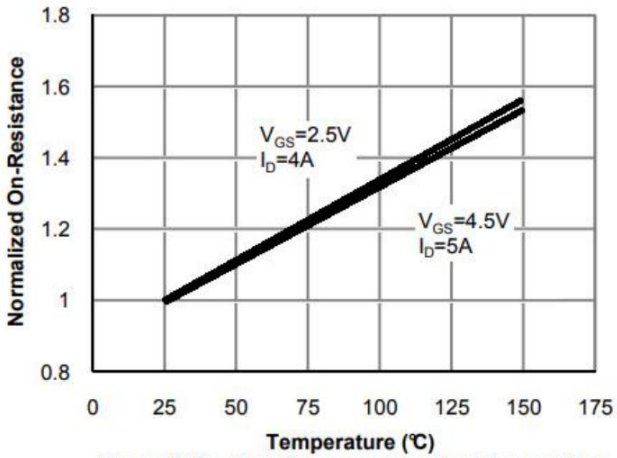


Figure 4: On-Resistance vs. Junction Temperature

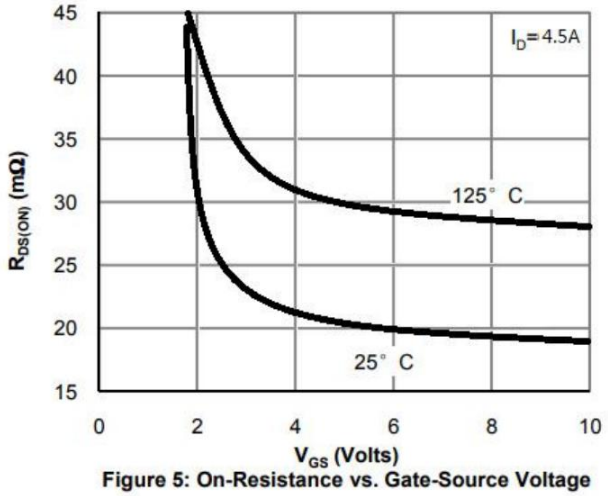


Figure 5: On-Resistance vs. Gate-Source Voltage

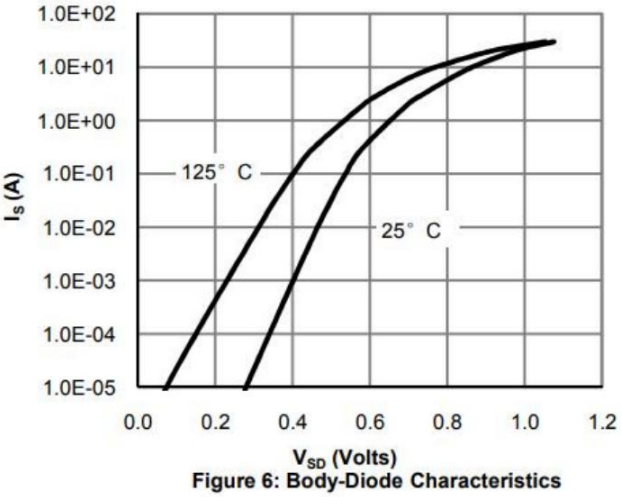


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

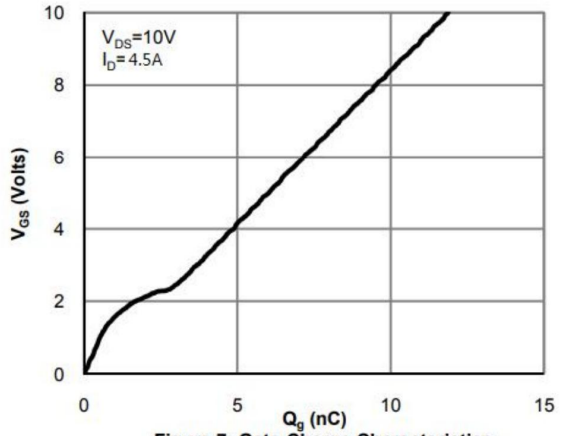


Figure 7: Gate-Charge Characteristics

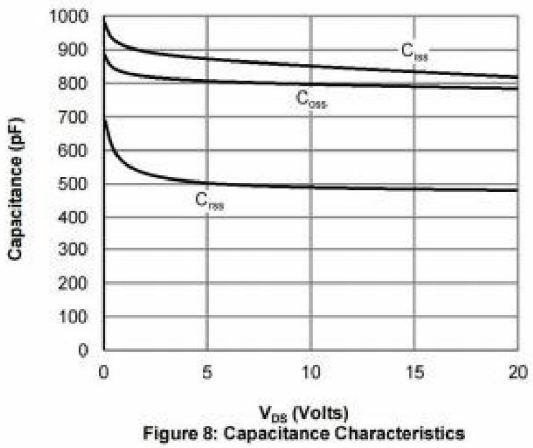


Figure 8: Capacitance Characteristics

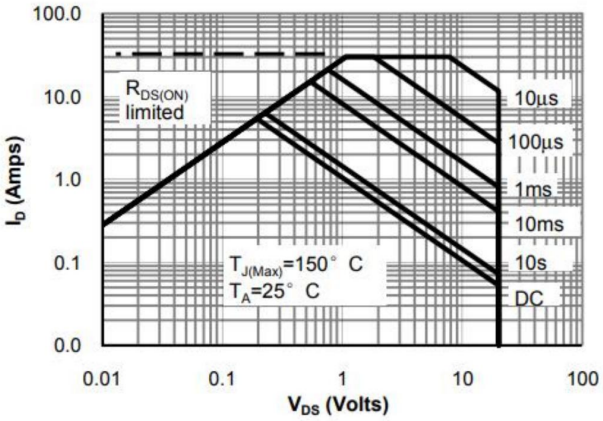


Figure 9: Maximum Forward Biased Safe Operating Area

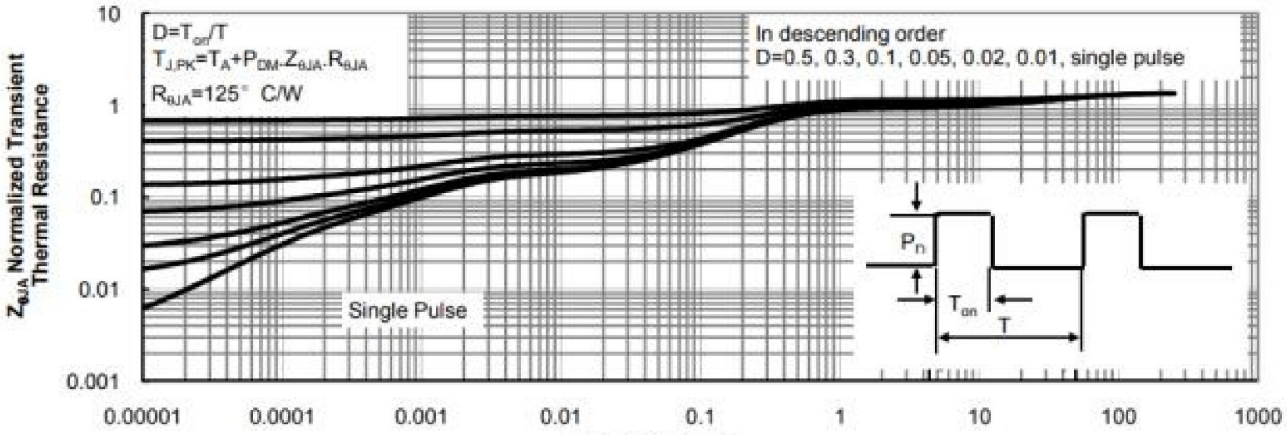
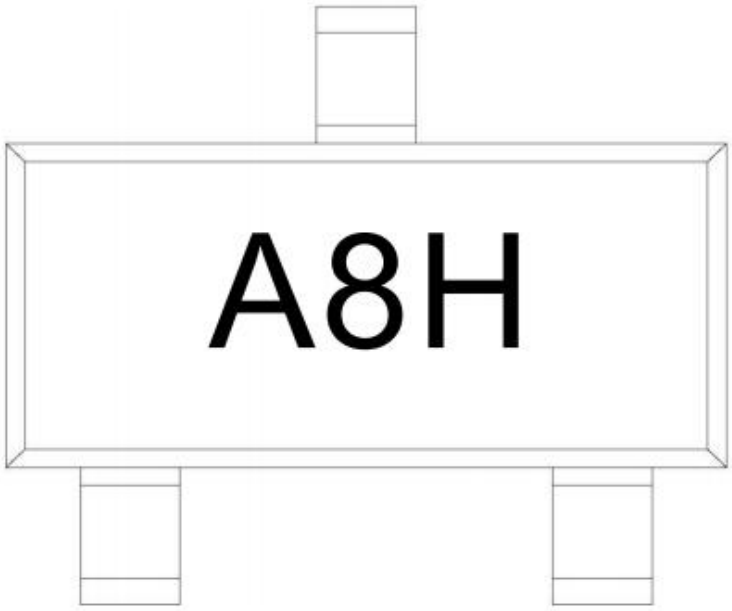


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

A8: Product Type Code

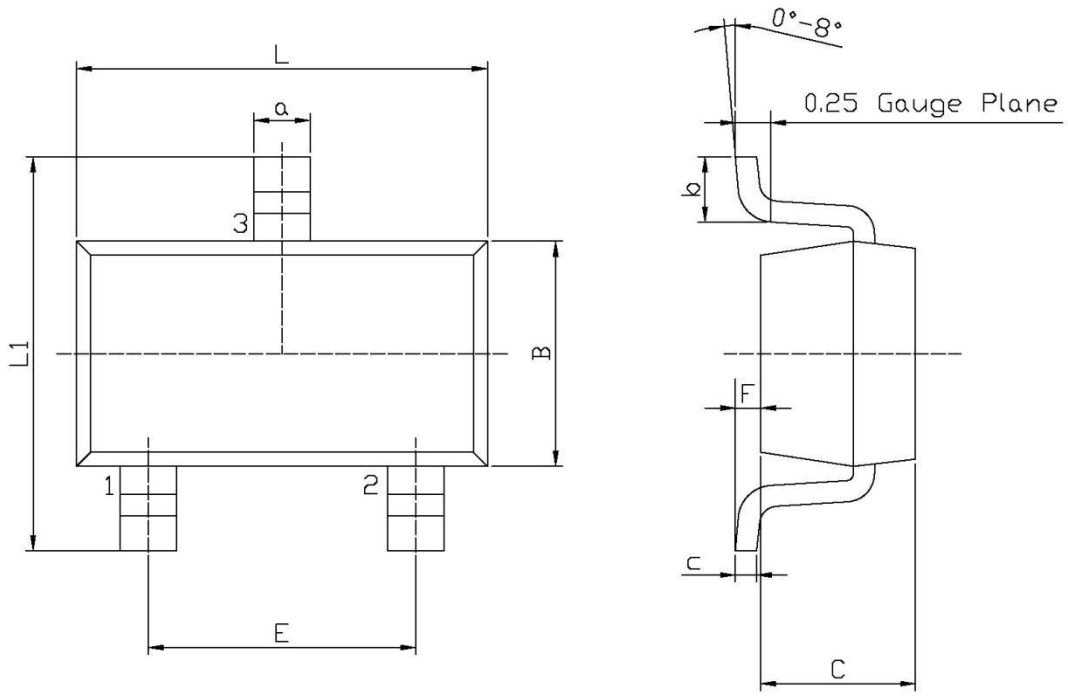
H: Company Code.

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
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