

## Descriptions

This 20V 3A N-Channel MOSFET in a SOT-23 Plastic Package.

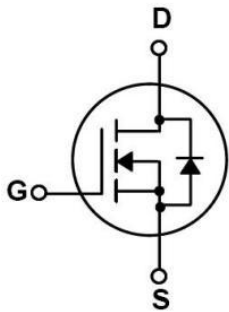
## Features

- Low  $R_{DS(ON)}$
- SOT-23 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

## Absolute Maximum Ratings(Ta=25°C)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		$V_{DSS}$	60	V
Gate-Source Voltage		$V_{GSS}$	±20	V
Drain Current – Continuous		$I_D$	3.0	A
Pulsed Drain Current		$I_{DM}$	15	A
Power Dissipation		$P_D$	0.9	W
Storage Temperature Range		$T_{stg}$	-55~150	°C
Maximum Junction-to-Ambient	t ≤ 10s	$R_{JA}$	55	°C/W
Maximum Junction-to-Ambient	Steady-State		80	
Maximum Junction-to-Lead	Steady-State	$R_{JL}$	40	

## Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0$ $I_D=10\mu A$	60	68		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{GS}=0$ $V_{DS}=60V$			1.0	$\mu A$
Gate–Body Leakage.	$I_{GSS}$	$V_{GS}=\pm 20V$ $V_{DS}=0V$			$\pm 100$	nA
Static Drain–Source On–Resistance	$R_{DS(on)1}$	$V_{GS}=10V$ $I_D=3A$		84	90	m $\Omega$
	$R_{DS(on)2}$	$V_{GS}=4.5V$ $I_D=3A$		94	110	m $\Omega$
Drain–Source Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ $I_D=1A$		0.75	1.2	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=50\mu A$	1.0	1.8	3.0	V
Maximum Body-Diode Continuous Current	$I_S$				3	A
Input Capacitance	$C_{iss}$	$V_{GS}=0V$ , $V_{DS}=25V$ $f=1MHz$		415		pF
Output Capacitance	$C_{oss}$			37		
Reverse Transfer Capacitance	$C_{rss}$			25		
Gate resistance	$R_g$	$V_{GS}=0V$ , $V_{DS}=0V$ $f=1MHz$		3.4		$\Omega$
Total Gate Charge	$Q_g(10V)$	$V_{GS}=10V$ , $V_{DS}=30V$ $I_D=4.2A$		10	12	nC
Total Gate Charge	$Q_g(4.5V)$			5	6	
Gate Source Charge	$Q_{gs}$			2		
Gate Drain Charge	$Q_{gd}$			3		
Turn–On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ , $V_{DS}=30V$ $RL=7\Omega$ , $R_{GEN}=3\Omega$			7	ns
Turn–On Rise Time	$t_r$				4	
Turn–Off Delay Time	$t_{d(off)}$				20	
Turn–Off Fall Time	$t_f$				3	

Electrical Characteristic Curve

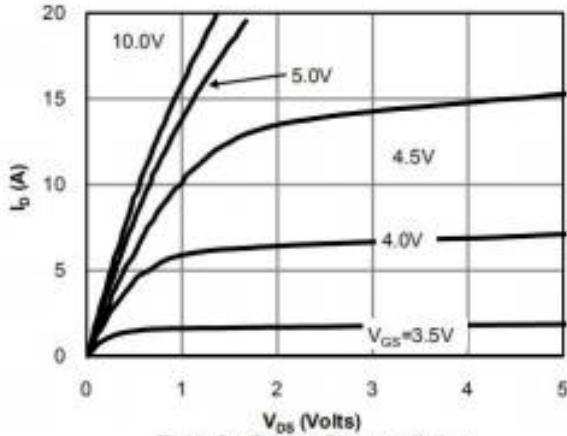


Fig 1: On-Region Characteristics

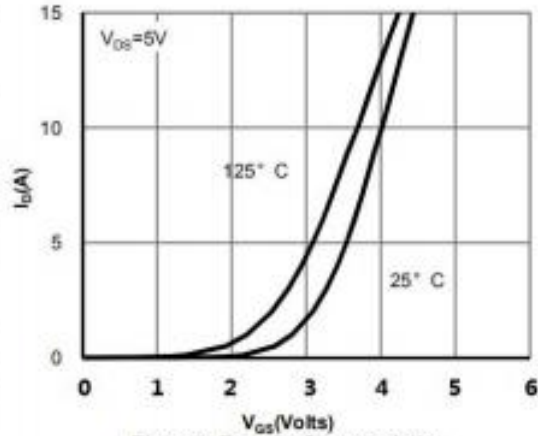


Figure 2: Transfer Characteristics

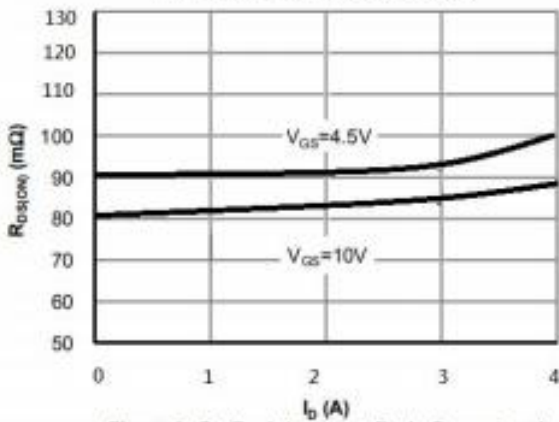


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

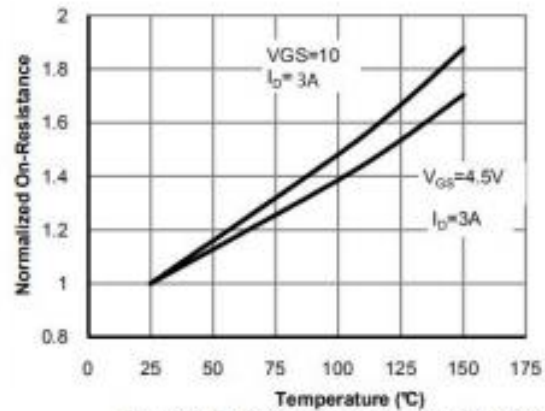


Figure 4: On-Resistance vs. Junction Temperature

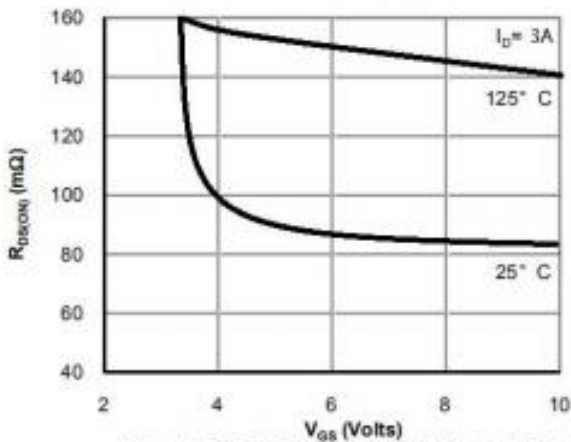


Figure 5: On-Resistance vs. Gate-Source Voltage

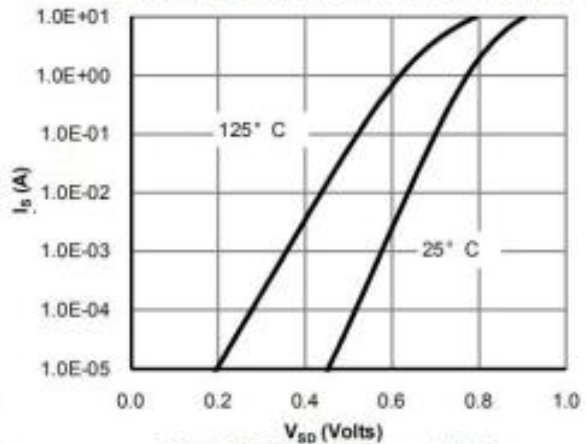


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

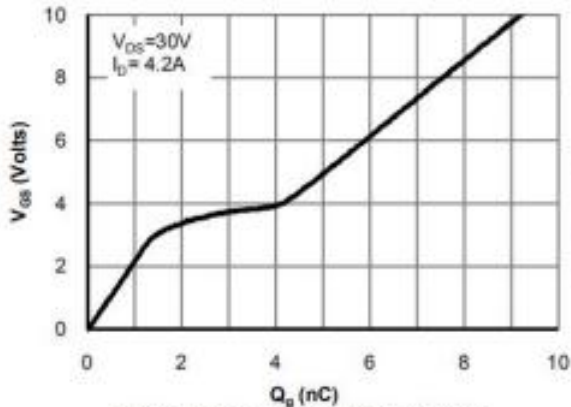


Figure 7: Gate-Charge Characteristics

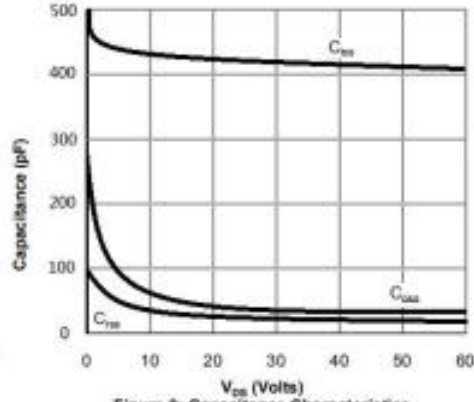


Figure 8: Capacitance Characteristics

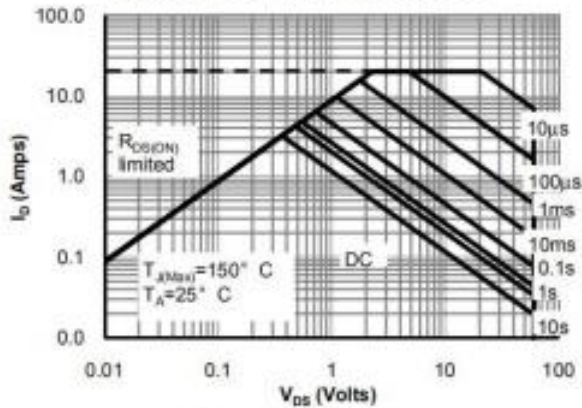


Figure 9: Maximum Forward Biased Safe Operating Area

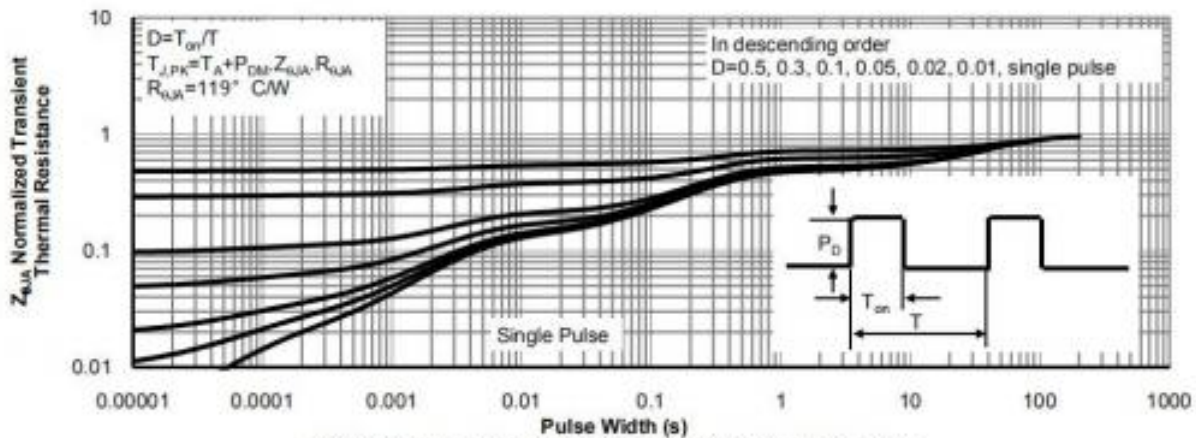
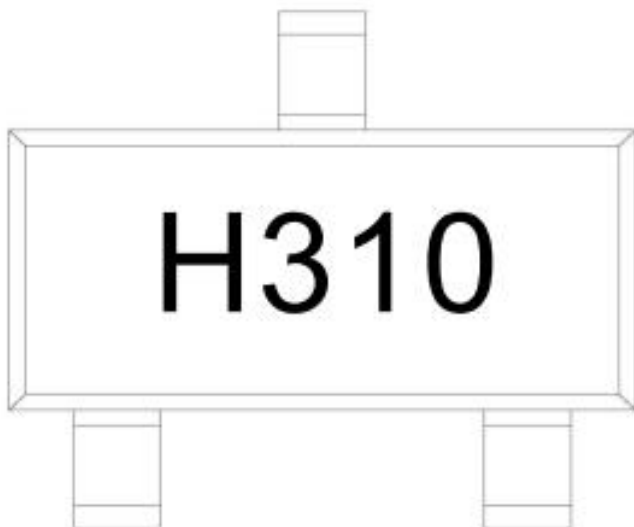


Figure 10 Normalized Maximum Transient Thermal Impedance

**Marking Instructions**



Note:

H: Company Code.

310: Product Type Code

**Packaging SPEC**

REEL INFORMATION

Package Type	Units					Dimension (unit: mm <sup>3</sup> )		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT-23	3,000	10	30,000	6	180,000	7" x8	180x120x180	390x385x205

**Package Outline Dimensions**

SOT-23

单位: mm

