

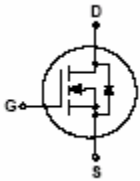


SOT-23 Plastic-Encapsulate MOSFET

HL2300 MOSFET (N-Channel)

FEATURES

- 20V, 4A, $R_{DS(ON)}=55m\Omega$ @ $V_{GS}=4.5V$.
20V, 3.4A, $R_{DS(ON)}=70m\Omega$ @ $V_{GS}=2.5V$.
20V, 2.8A, $R_{DS(ON)}=90m\Omega$ @ $V_{GS}=1.8V$.
- High dense cell design for extremely low $R_{DS(ON)}$.
- Exceptional on-resistance and maximum DC current capability



SOT-23



1. GATE
2. SOURCE
3. DRAIN

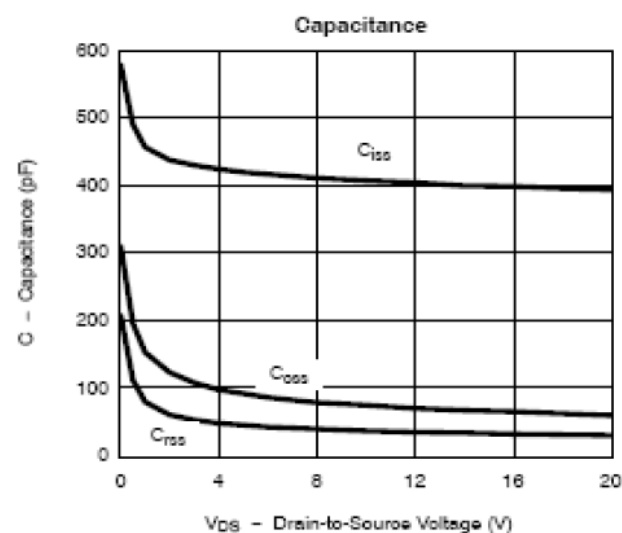
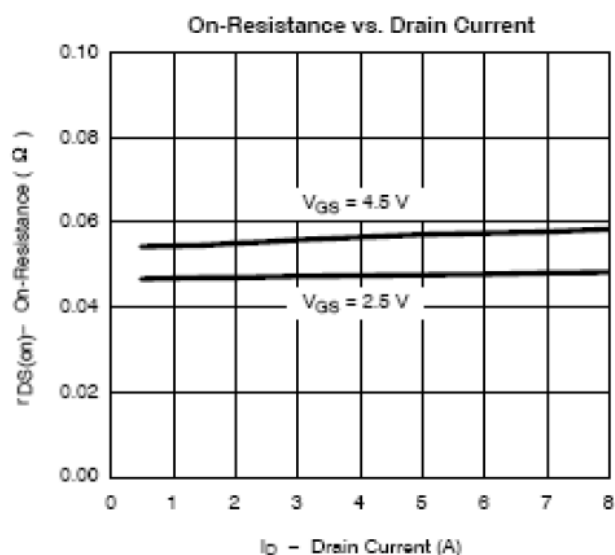
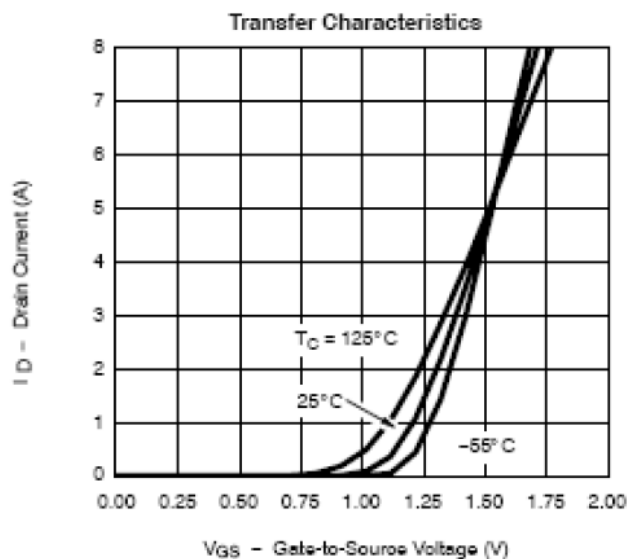
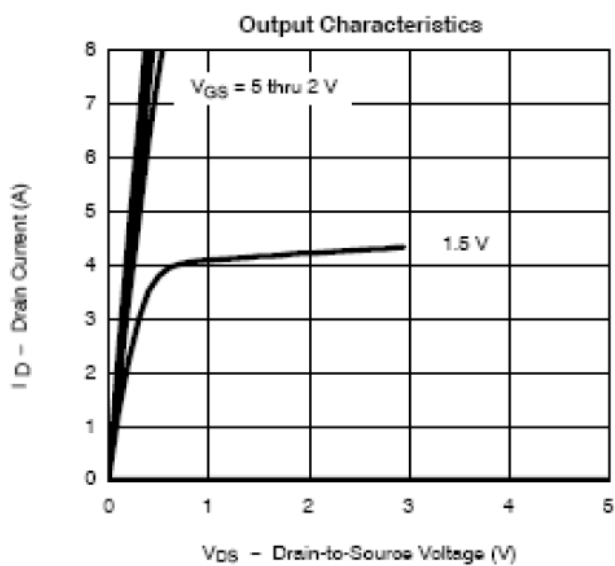
MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

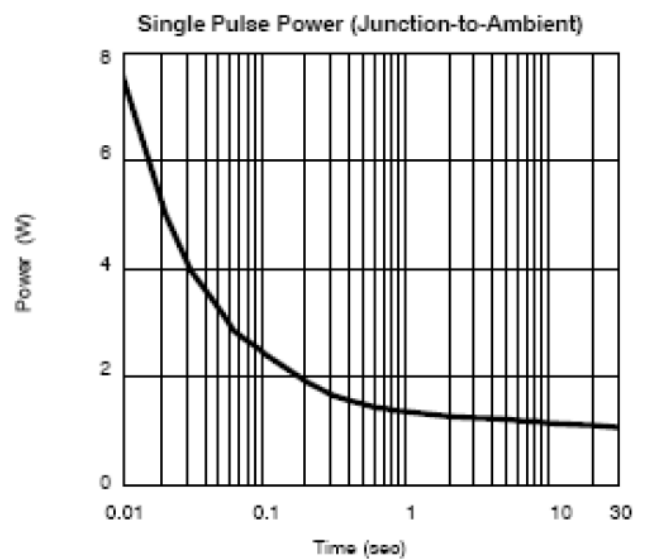
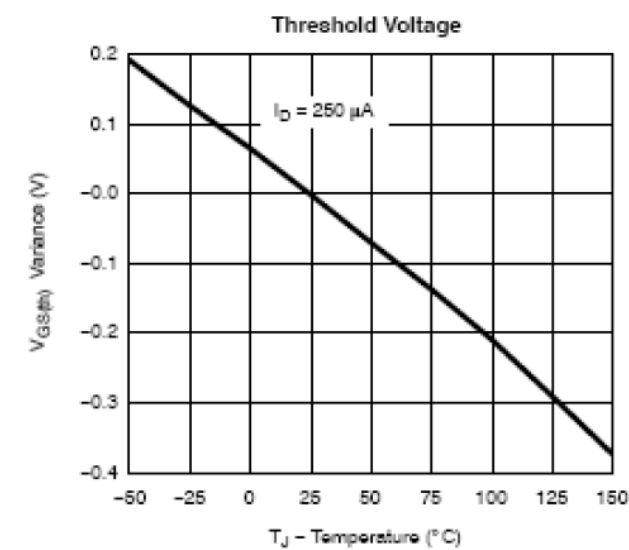
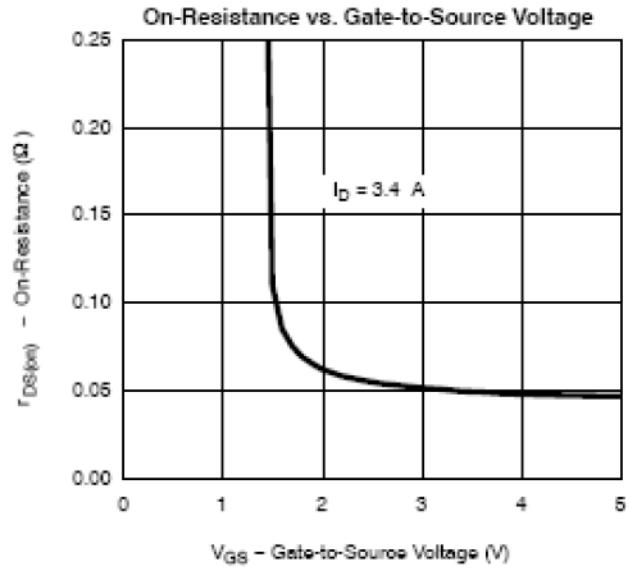
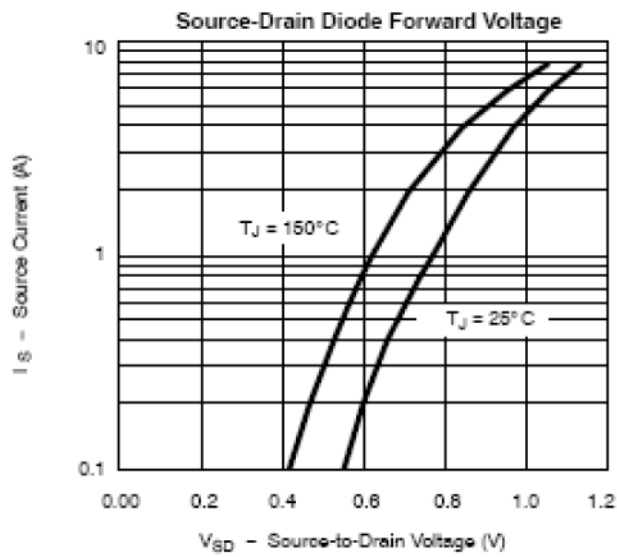
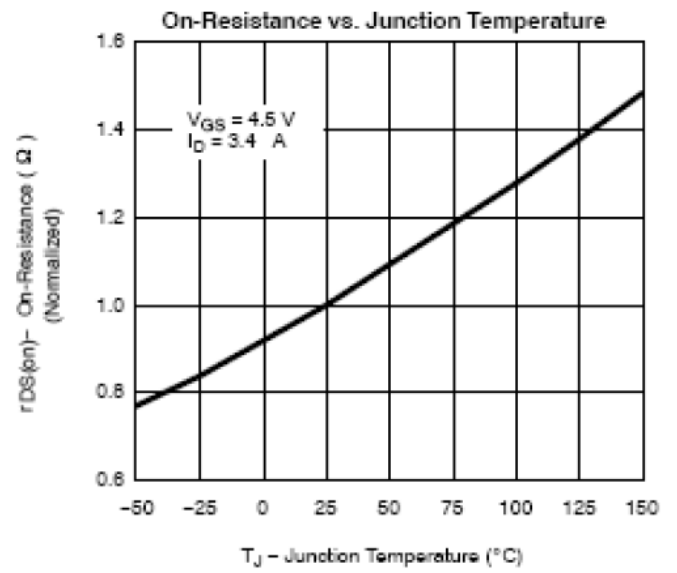
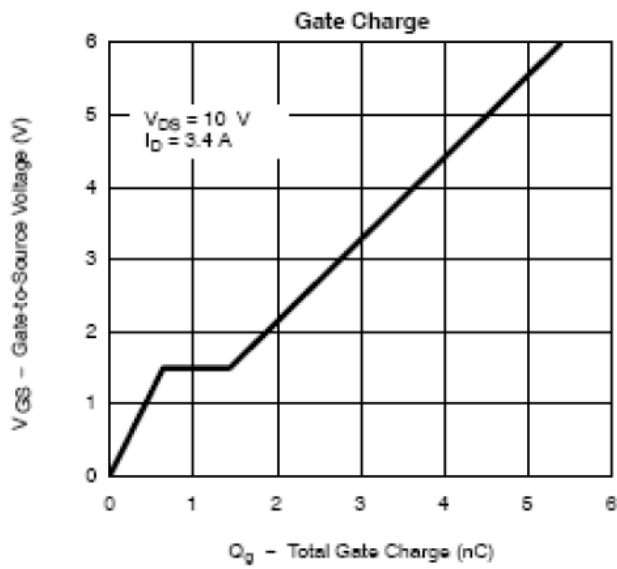
Symbol	Parameter	Value	Units
V_{DS}	Drain-Source voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Drain Current	4	A
I_{DM}	Drain Current-Pulsed	10	A
P_D	Power Dissipation	0.25	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55-150	$^\circ\text{C}$
$R\theta_{JA}$	Thermal Resistance, Junction-to-Ambient	500	$^\circ\text{C}/\text{W}$

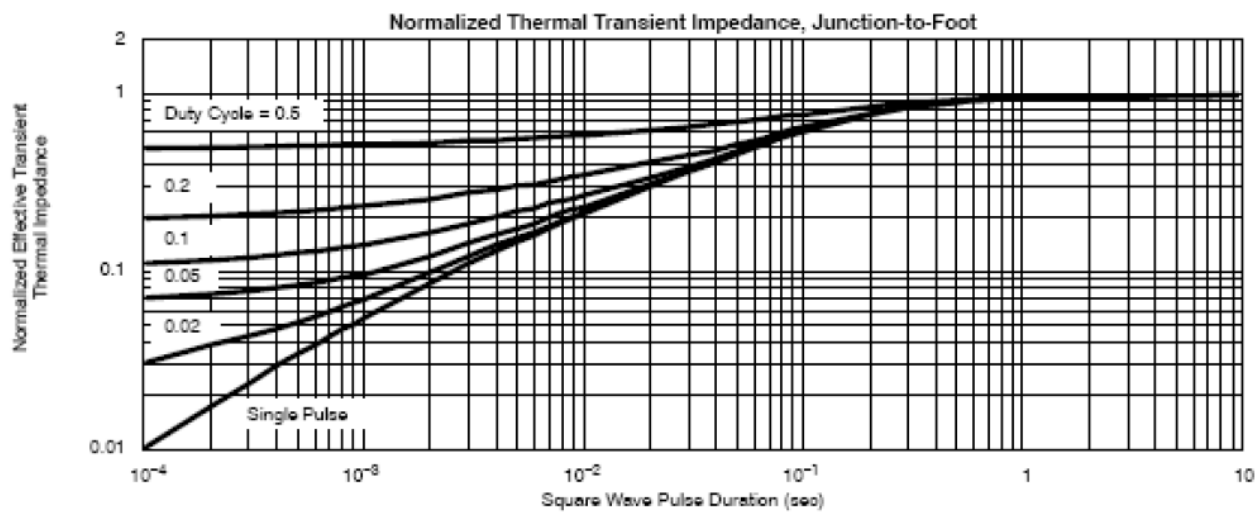
ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0			1	μA
Gate Body Leakage Current, Forward	I _{GSSF}	V _{GS} = 12V, V _{DS} = 0V			100	nA
Gate Body Leakage Current, Reverse	I _{GSSR}	V _{GS} = -12V, V _{DS} = 0V			-100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{GS} = V _{DS} , I _D = 250μA	0.4		1	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 4A			55	mΩ
		V _{GS} = 2.5V, I _D = 3.4A			70	mΩ
		V _{GS} = 1.8V, I _D = 2.8A			90	mΩ
Forward Transconductance	g _{FS}	V _{DS} = 5V, I _D = -3.6A	6			S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 6V, V _{GS} = 0V, f = 1 MHz		485		pF
Output Capacitance	C _{oss}			85		pF
Reverse Transfer Capacitance	C _{rss}			40		pF
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DD} = 6V, I _D = 1A, V _{GEN} = 4.5V, R _G = 6Ω, R _L = 6Ω			14	ns
Turn-On Rise Time	t _r				18	ns
Turn-Off Delay Time	t _{d(off)}				35	ns
Turn-Off Fall Time	t _f				16	ns
Total Gate Charge	Q _g	V _{DS} = 6V, I _D = 2.8A, V _{GS} = 4.5V		4.8	8	nC
Gate-Source Charge	Q _{gs}			1.0		nC
Gate-Drain Charge	Q _{gd}			1.0		nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 1.6A			1.2	V

Typical characteristics







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