

P-Channel 20V (D-S) MOSFET

GENERAL DESCRIPTION

The ME2301S is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits where low in-line power loss are needed in a very small outline surface mount package.

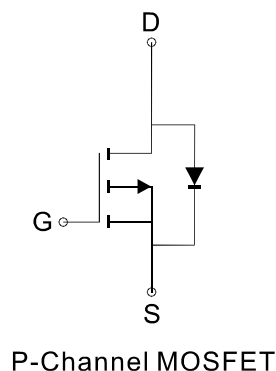
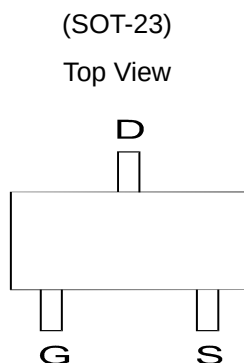
FEATURES

- $R_{DS(ON)} \leq 110m\Omega @ V_{GS} = -4.5V$
- $R_{DS(ON)} \leq 150m\Omega @ V_{GS} = -2.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- Load Switch
- DSC

PIN CONFIGURATION



Ordering Information: ME2301S (Pb-free)

ME2301S-G (Green product-Halogen free)

Absolute Maximum Ratings ($T_A = 25^\circ C$ Unless Otherwise Noted)

Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 8	V
Continuous Drain Current *	$T_A = 25^\circ C$	I_D	-2.8	A
	$T_A = 70^\circ C$		-2.2	
Pulsed Drain Current		I_{DM}	-11	A
Maximum Power Dissipation	$T_A = 25^\circ C$	P_D	1.3	W
	$T_A = 70^\circ C$		0.8	
Operating Junction Temperature		T_J	-55 to 150	$^\circ C$
Thermal Resistance-Junction to Ambient*		$R_{\theta JA}$	90	$^\circ C/W$

* The device mounted on 1in² FR4 board with 2 oz copper

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Electrical Characteristics (T_J = 25°C Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250 μA	-20			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250 μA	-0.4		-1	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±8V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V			-1	μA
R _{DS(ON)}	Drain-Source On-Resistance ^a	V _{GS} =-4.5V, I _D = -2.8A		90	110	mΩ
		V _{GS} =-2.5V, I _D = -2.0A		110	150	
V _{SD}	Diode Forward Voltage	I _S =-1A, V _{GS} =0V		-0.7	-1.4	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =-6V, V _{GS} =-4.5V, I _D =-2.8A		6		nC
Q _{gs}	Gate-Source Charge			1.9		
Q _{gd}	Gate-Drain Charge			1.4		
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1.0MHz		372		pF
C _{oss}	Output Capacitance			56		
C _{rss}	Reverse Transfer Capacitance			44		
t _{d(on)}	Turn-On Delay Time	V _{DS} =-6V, R _L =6Ω R _{GEN} =6Ω, V _{GS} =-4.5V		57.8		ns
t _r	Turn-On Rise Time			26		
t _{d(off)}	Turn-Off Delay Time			31.7		
t _f	Turn-Off Fall time			19.8		

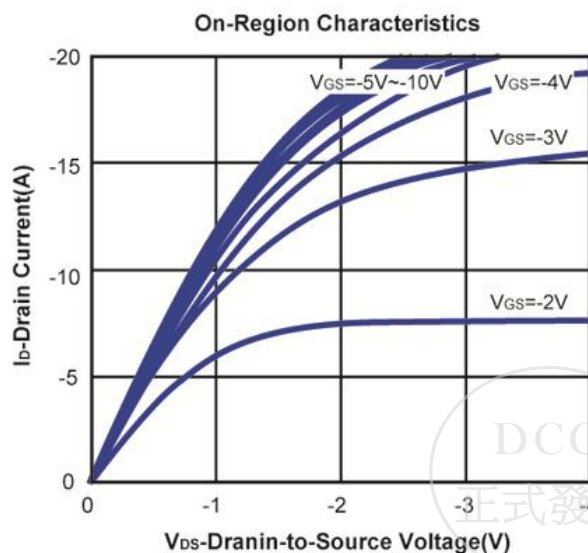
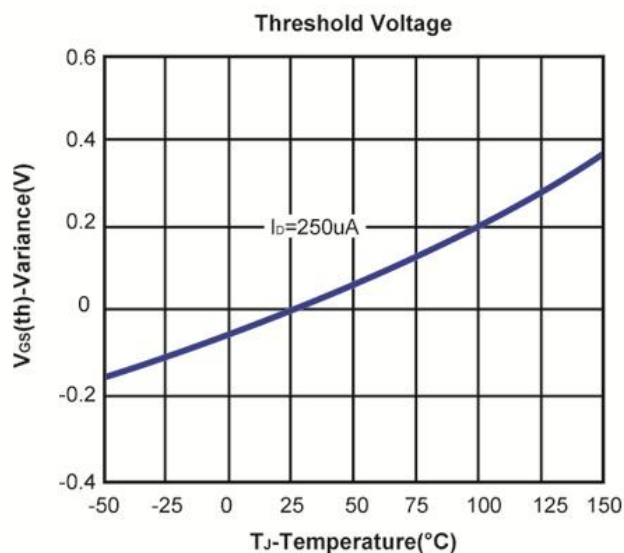
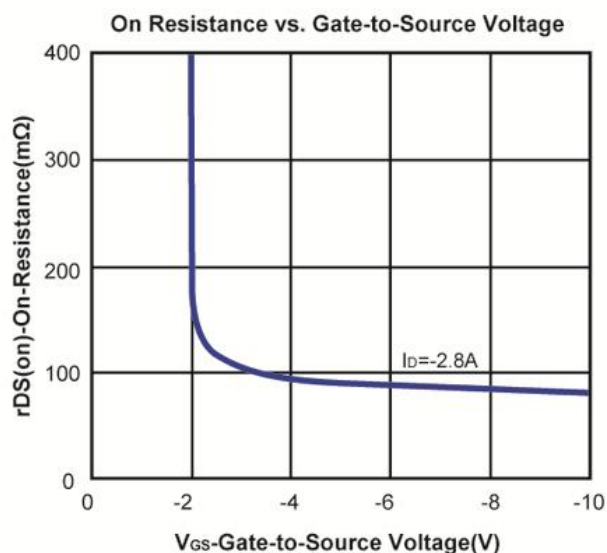
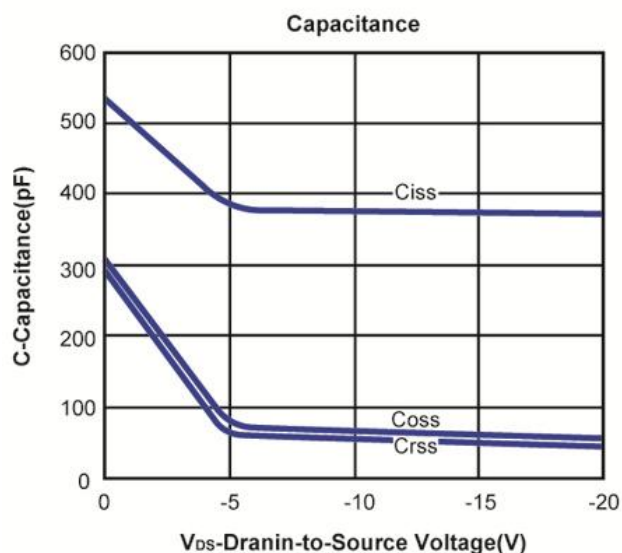
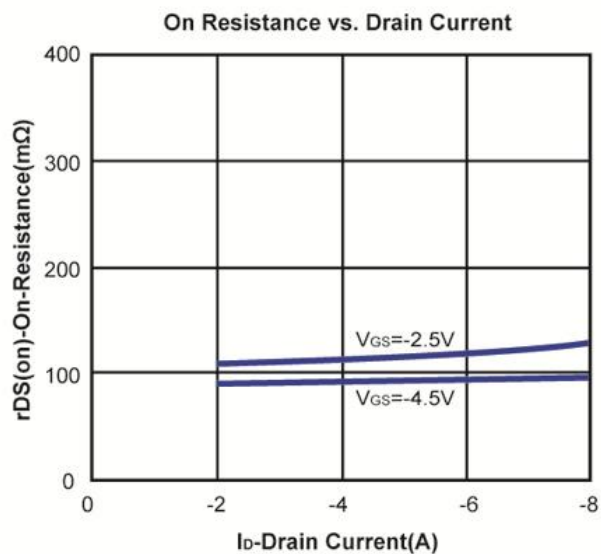
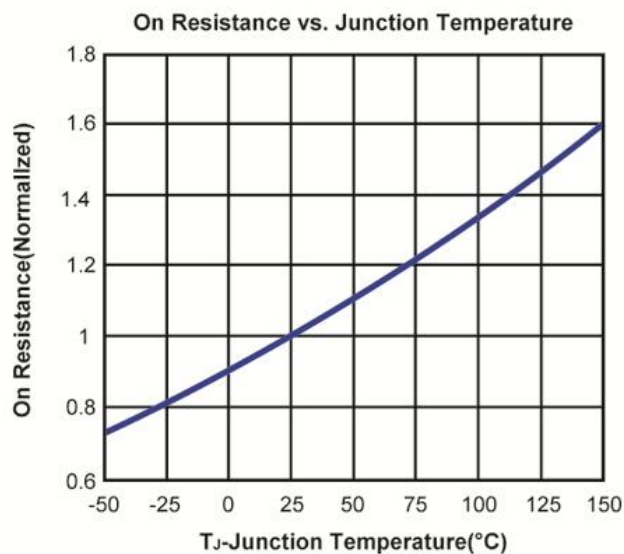
Notes: a. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%, Guaranteed by design, not subject to production testing.

b. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.



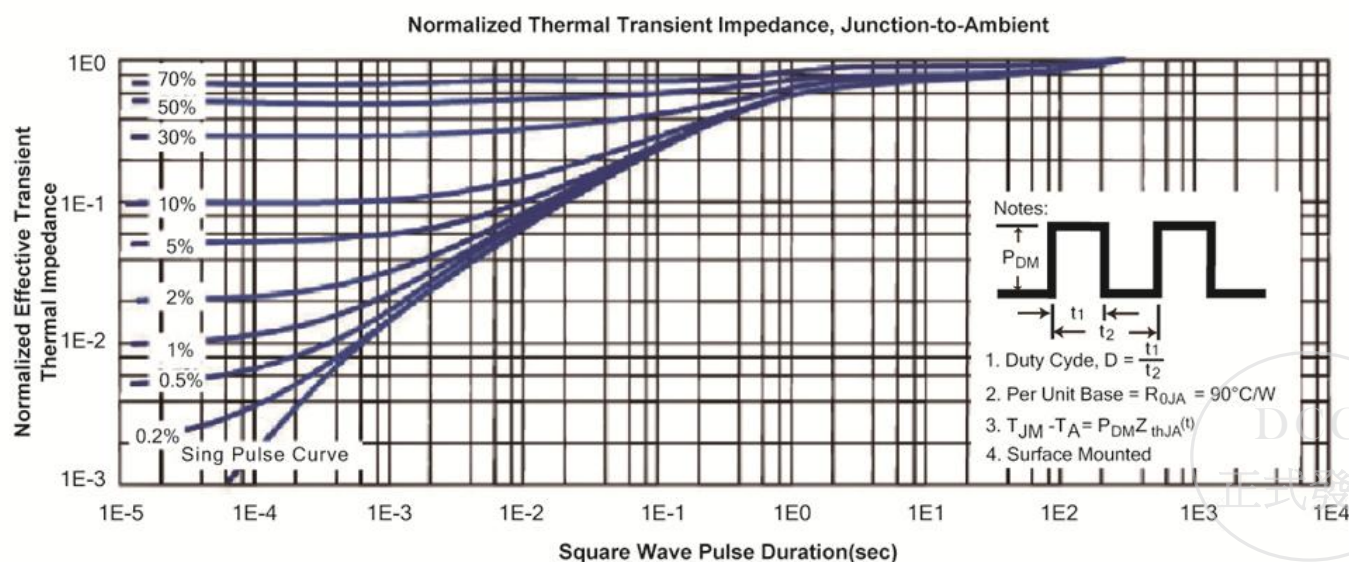
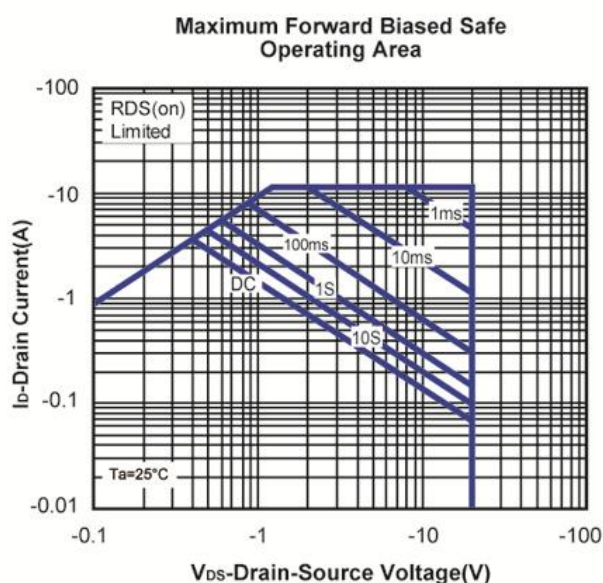
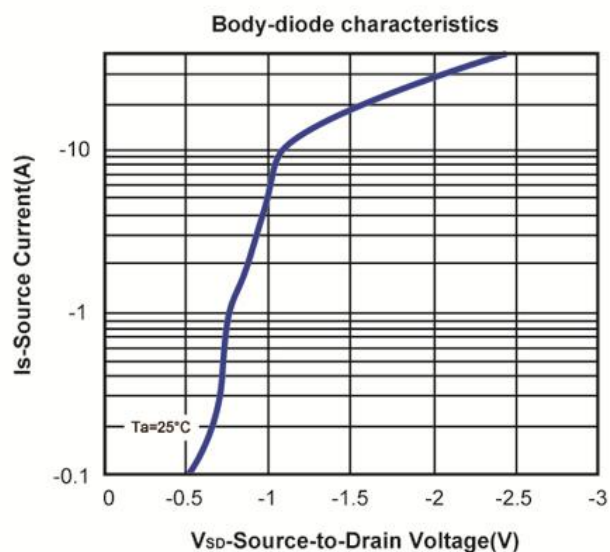
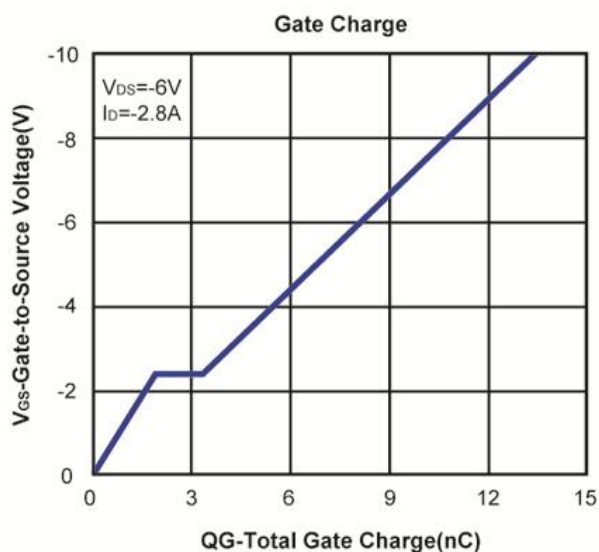
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Typical Characteristics (T_J = 25°C Noted)

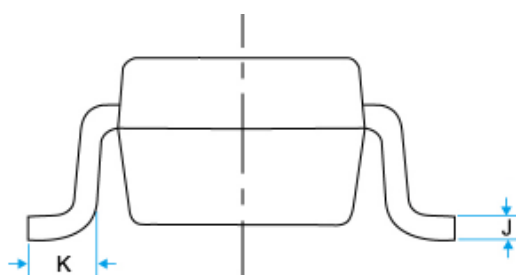
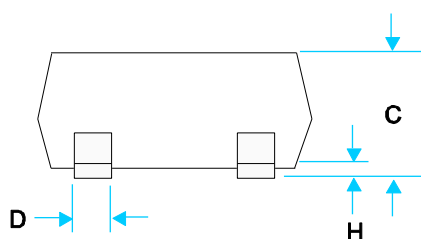
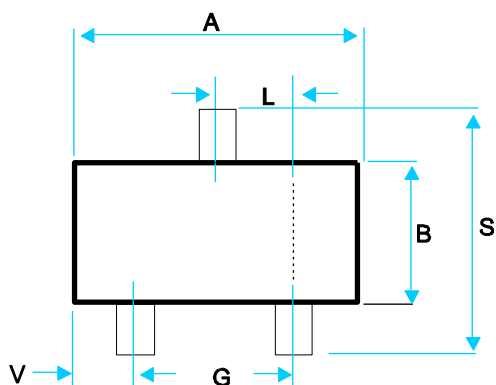


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SOT-23 Package Outline



DIM	MILLIMETERS (mm)	
	MIN	MAX
A	2.800	3.00
B	1.200	1.70
C	0.900	1.30
D	0.350	0.50
G	1.780	2.04
H	0.010	0.15
J	0.085	0.20
K	0.300	0.65
L	0.890	1.02
S	2.100	3.00
V	0.450	0.60