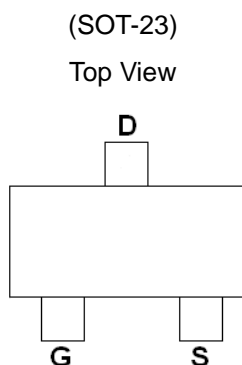


P-Channel 60V (D-S) MOSFET

GENERAL DESCRIPTION

The ME2309 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 high-side switching and low in-line power loss are needed in a very small outline surface mount package.

PIN CONFIGURATION

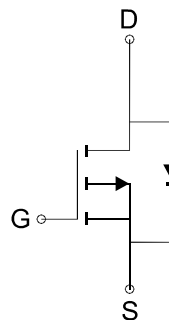


FEATURES

- $R_{DS(ON)} \leq 215m\Omega @ V_{GS} = -10V$
- $R_{DS(ON)} \leq 260m\Omega @ V_{GS} = -4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter



P-Channel MOSFET

Ordering Information: ME2309(Pb-free)

ME2309-G (Green product-Halogen free)

Absolute Maximum Ratings (TA=25°C Unless Otherwise Noted)

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$T_A = 25^\circ C$	I_D	-1.9
	$T_A = 70^\circ C$	I_D	-1.5
Pulsed Drain Current	I_{DM}	-7.6	A
Maximum Power Dissipation	$T_A = 25^\circ C$	P_D	1.4
	$T_A = 70^\circ C$	P_D	0.9
Storage Temperature Range	T_{stg}	-55 to 150	°C
Thermal Resistance-Junction to Ambient*	$R_{\theta JA}$	90	°C/W

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



P-Channel 60V (D-S) MOSFET
Electrical Characteristics ($T_A=25^\circ\text{C}$ Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\ \mu A$	-60			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\ \mu A$	-1		-3	V
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-60V, V_{GS}=0V$			-1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-1.8A$		170	215	m Ω
		$V_{GS}=-4.5V, I_D=-1.4A$		200	260	
V_{SD}	Diode Forward Voltage	$I_S=-1.2A, V_{GS}=0V$			-1.2	V
DYNAMIC						
Q_g	Total Gate Charge	$V_{DS}=-48V, V_{GS}=-4.5V, I_D=-1A$		6.3		nC
Q_{gs}	Gate-Source Charge			2.3		
Q_{gd}	Gate-Drain Charge			1.8		
C_{iss}	Input Capacitance	$V_{DS}=-30V, V_{GS}=0V, f=1MHz$		358		pF
C_{oss}	Output Capacitance			23		
C_{rss}	Reverse Transfer Capacitance			17		
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=-30V, R_L=30\ \Omega$ $R_{GS}=3.3\ \Omega, V_{GS}=-10V$ $I_D=-1A$		20		ns
t_r	Turn-On Rise Time			33.1		
$t_{d(off)}$	Turn-Off Delay Time			5.2		
t_f	Turn-Off Fall Time			3.8		

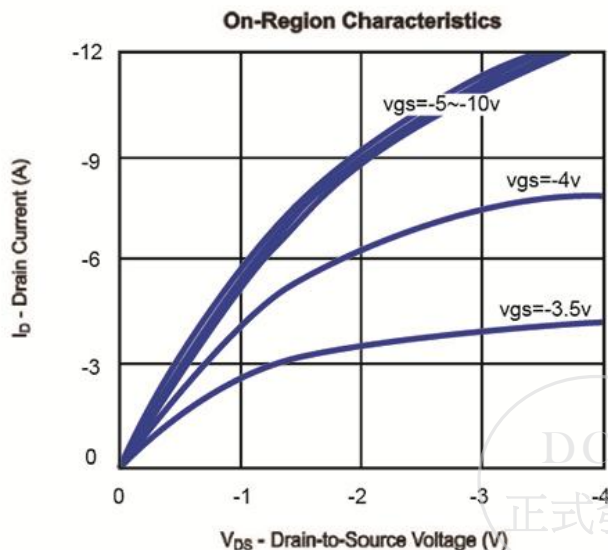
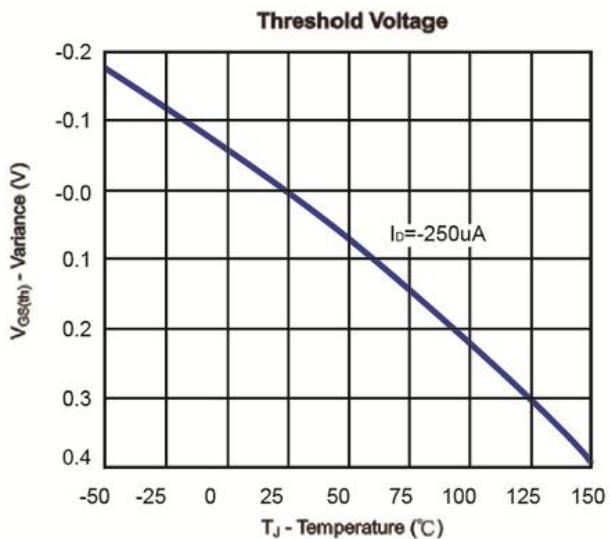
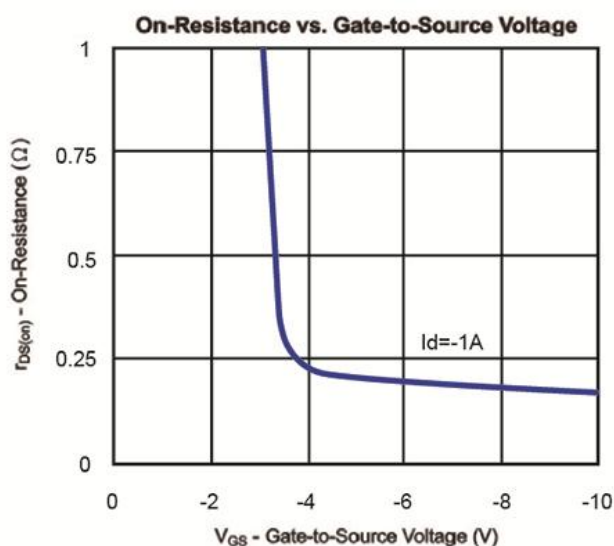
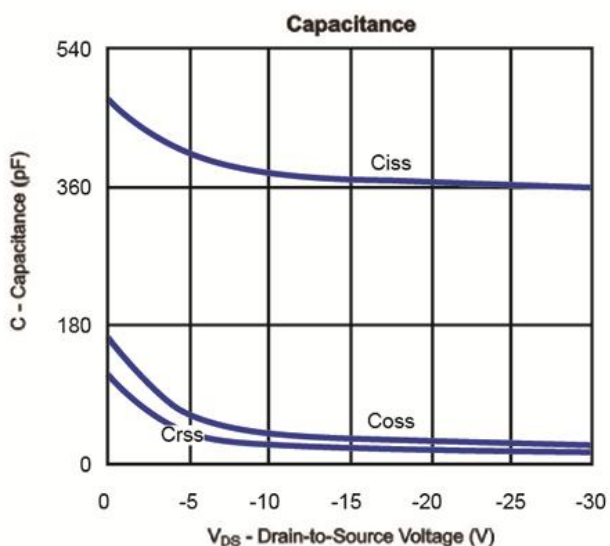
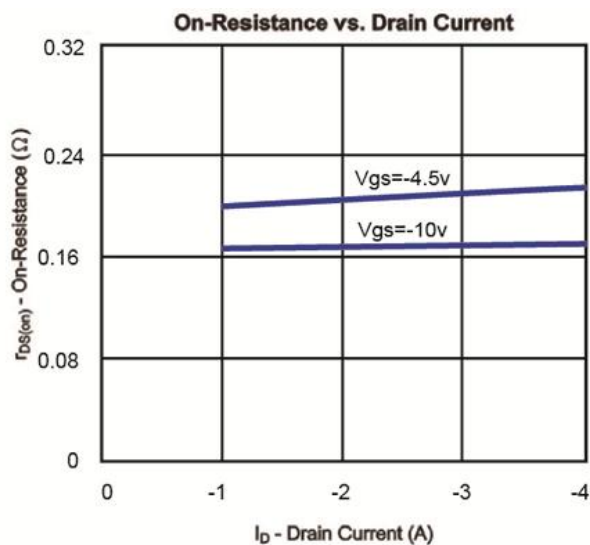
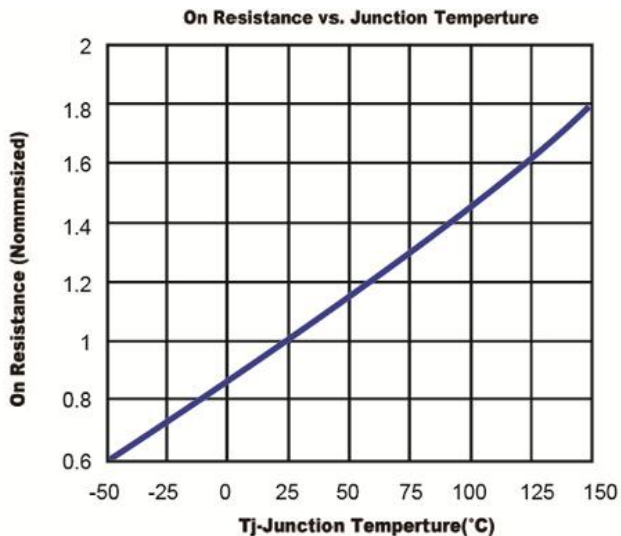
 Notes: a. Pulse test; pulse width $\leq 300\ \mu s$, duty cycle $\leq 2\%$

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



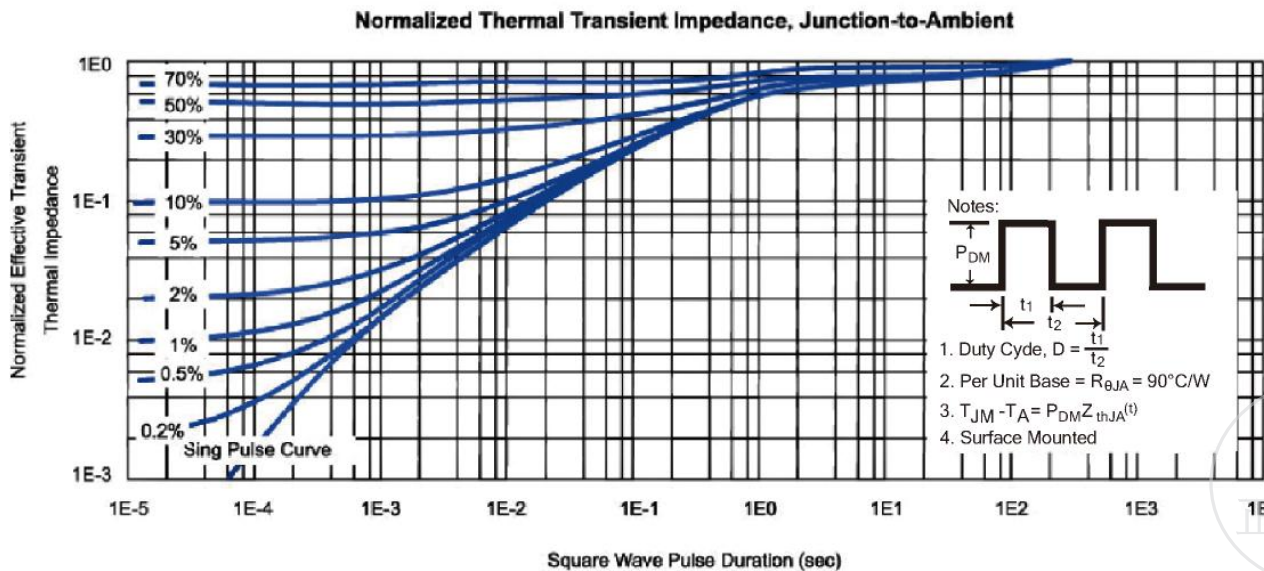
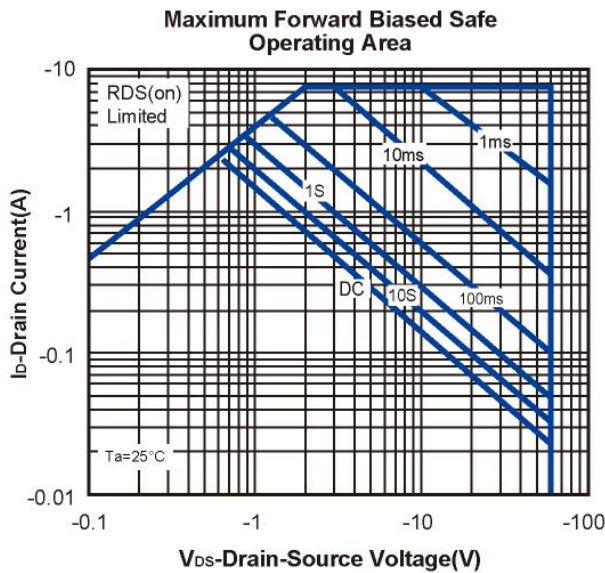
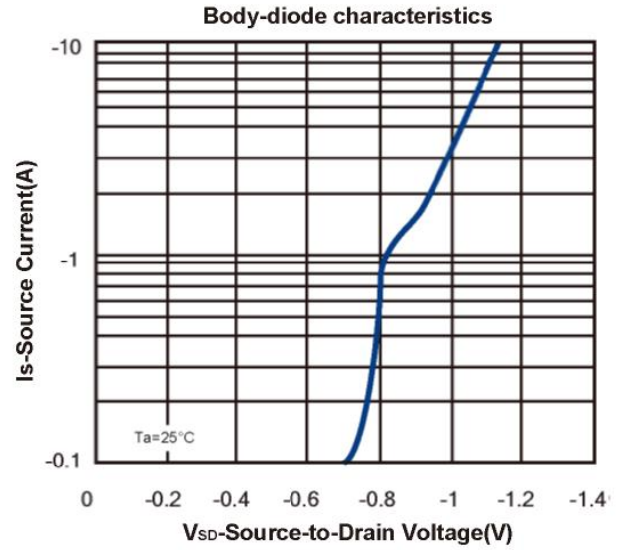
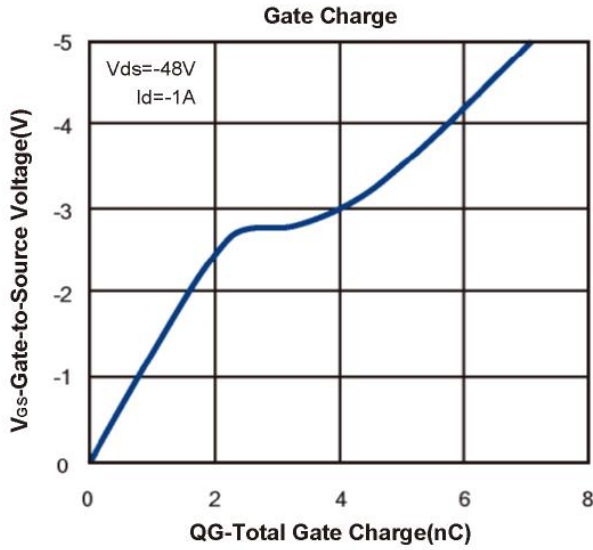
P-Channel 60V (D-S) MOSFET

Typical Characteristics (T_J =25°C Noted)

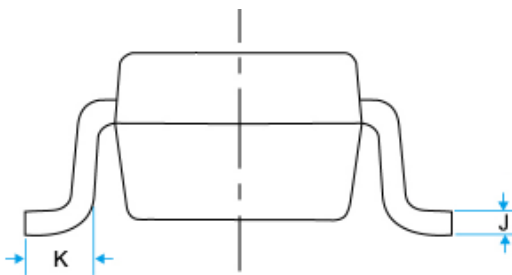
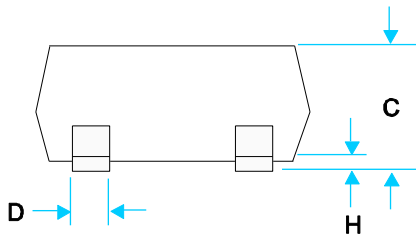
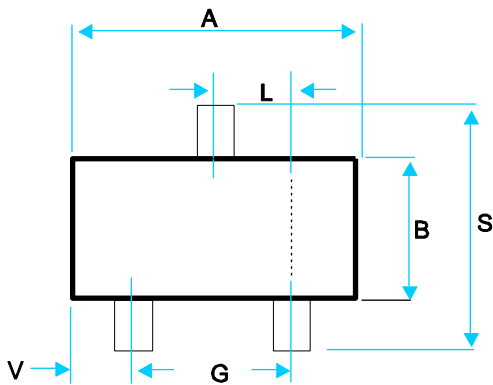


P-Channel 60V (D-S) MOSFET

Typical Characteristics (T_J =25°C Noted)



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

DCC
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