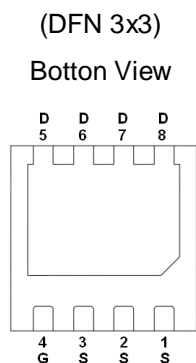


**P-Channel 30-V(D-S) MOSFET**

**GENERAL DESCRIPTION**

The ME7809 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 other battery powered circuits in a very small outline surface mount package.

**PIN CONFIGURATION**

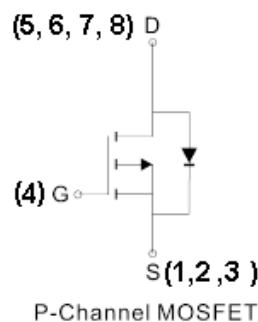


**FEATURES**

- $R_{DS(ON)} \leq 10m\Omega @ V_{GS} = -10V$
- $R_{DS(ON)} \leq 16m\Omega @ V_{GS} = -4.5V$
- 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
- Battery Powered System
- DC/DC Converter low side switching
- Load Switch



Ordering Information: ME7809 (Pb-free)

ME7809-G (Green product- Halogen free)

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

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current*	$I_D$	$T_A = 25^\circ C$	-16
		$T_A = 70^\circ C$	-12
Pulsed Drain Current	$I_{DM}$	-50	A
Maximum Power Dissipation*	$P_D$	$T_A = 25^\circ C$	28
		$T_A = 70^\circ C$	18
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	°C
Thermal Resistance-Junction to Ambient*	$R_{\theta JA}$	120	°C/W

\* The device mounted on 1in<sup>2</sup> FR4 board with 2 oz copper



**P-Channel 30-V(D-S) MOSFET**
**Electrical Characteristics** ( $T_A=25^\circ\text{C}$  Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
<b>STATIC</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\ \mu A$	-30			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\ \mu A$	-1		-3	V
I <sub>GSS</sub>	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 25V$			$\pm 100$	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$			1	$\mu A$
R <sub>DSON</sub>	Drain-Source On-State Resistance <sup>a</sup>	$V_{GS}=-10V, I_D=-15A$		6	10	m $\Omega$
		$V_{GS}=-4.5V, I_D=-10A$		12	16	
V <sub>SD</sub>	Diode Forward Voltage	$I_S=-2.3A, V_{GS}=0V$		-0.7	-1.3	V
<b>DYNAMIC</b>						
Q <sub>g</sub>	Total Gate Charge	$V_{DS}=-15V, V_{GS}=-4.5V, I_D=-12A$		25		nC
Q <sub>gs</sub>	Gate-Source Charge			10		
Q <sub>gd</sub>	Gate-Drain Charge			15		
C <sub>iss</sub>	Input capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1.0\text{MHz}$		2100		pF
C <sub>oss</sub>	Output Capacitance			400		
C <sub>rss</sub>	Reverse Transfer Capacitance			330		
t <sub>d(on)</sub>	Turn-On Delay Time	$V_{DD}=-15V, V_{GEN}=-10V, I_D=-12A$ $R_G=1\ \Omega, R_L=1.5\ \Omega$		15		$\mu s$
t <sub>r</sub>	Turn-On Rise Time			15		
t <sub>d(off)</sub>	Turn-Off Delay Time			35		
t <sub>f</sub>	Turn-Off Fall Time			10		

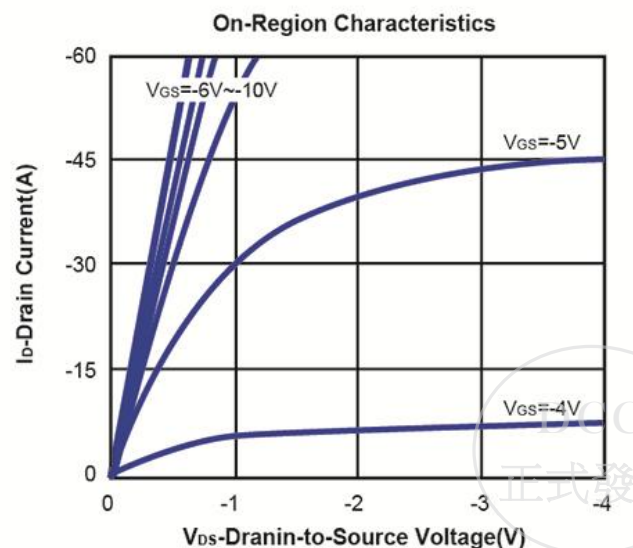
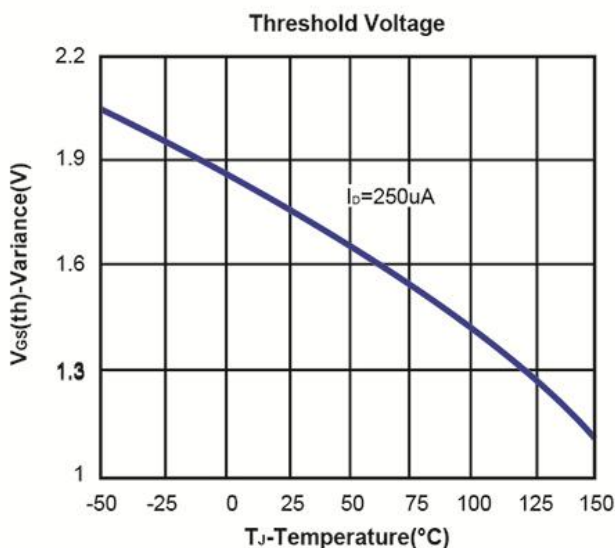
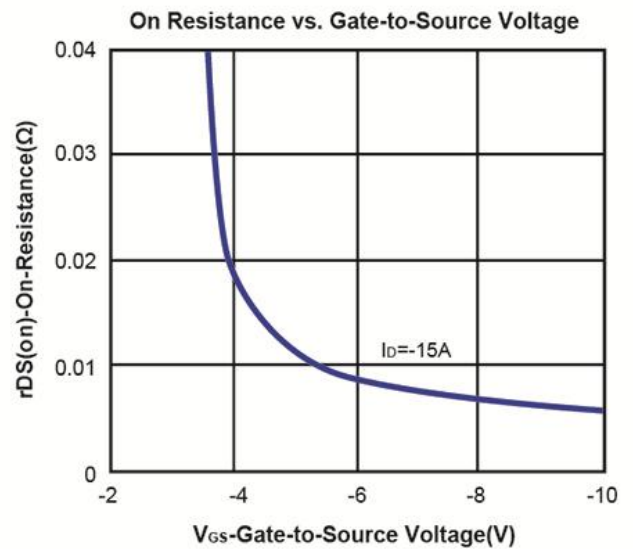
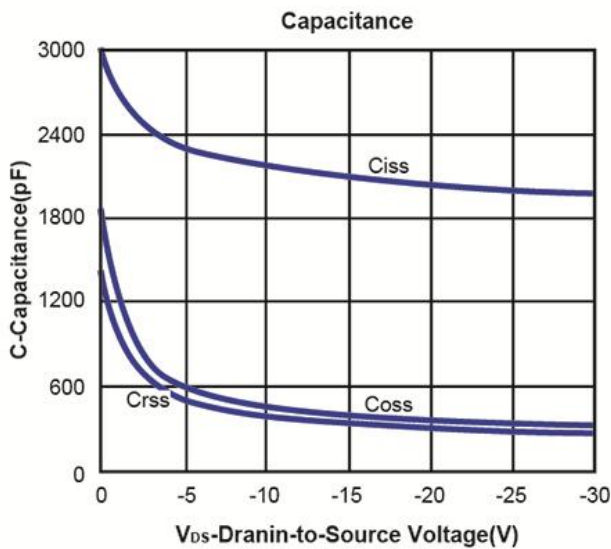
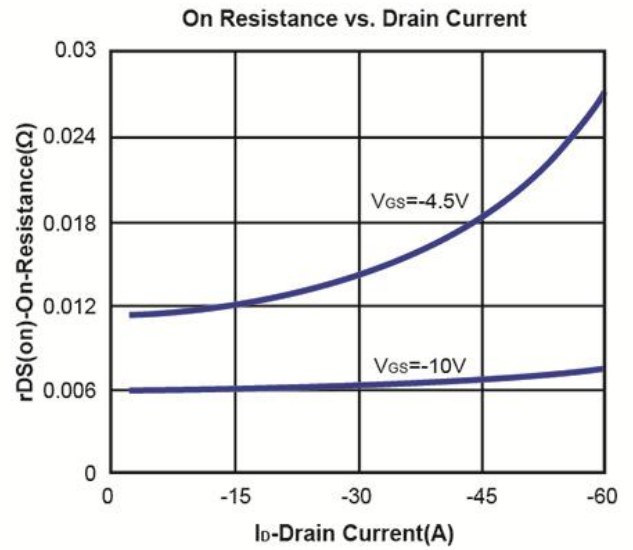
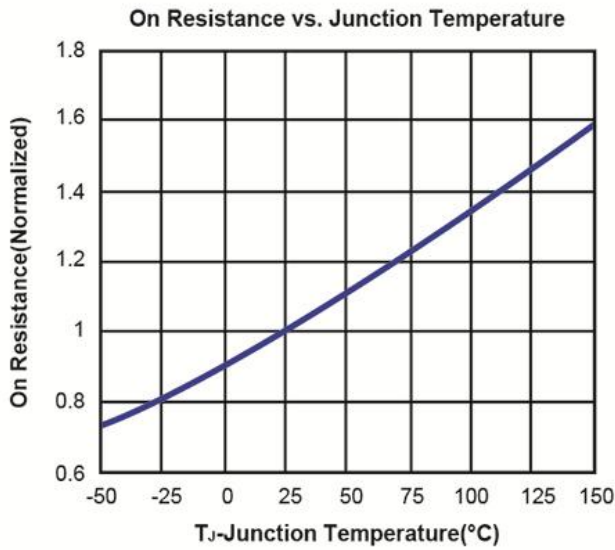
 Notes: a. Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ , Guaranteed by design, not subject to production testing.

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

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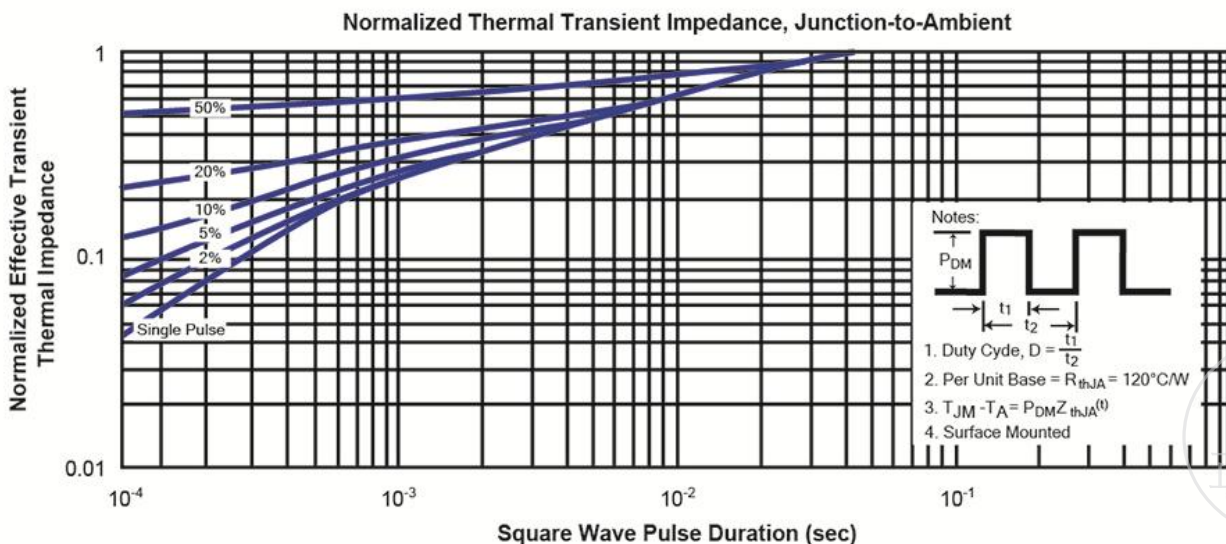
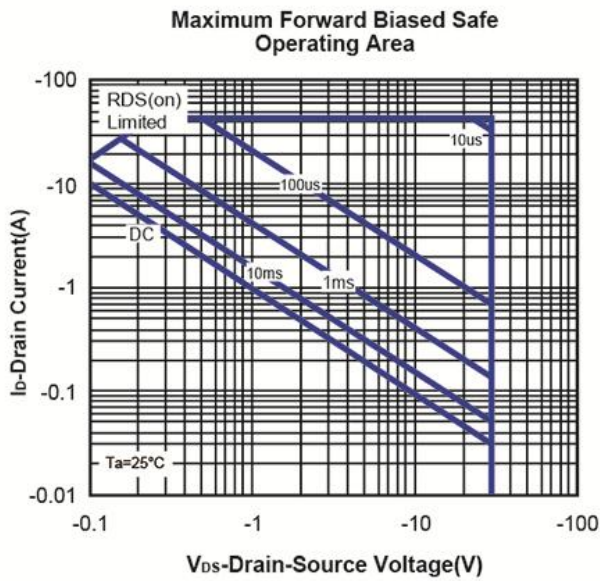
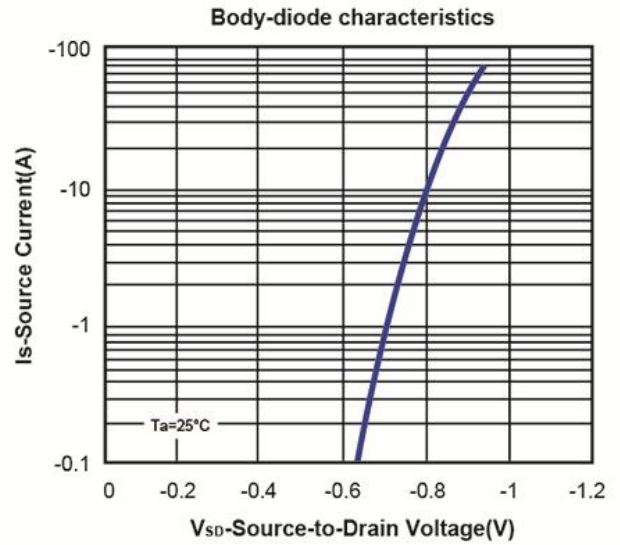
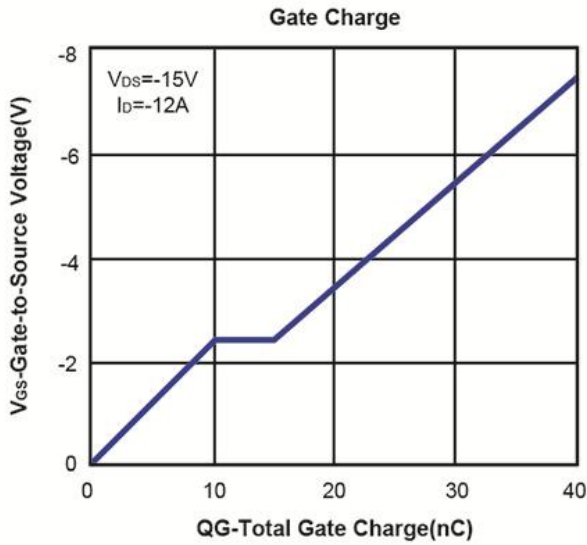
**P-Channel 30-V(D-S) MOSFET**

Typical Characteristics (T<sub>J</sub> = 25°C Noted)

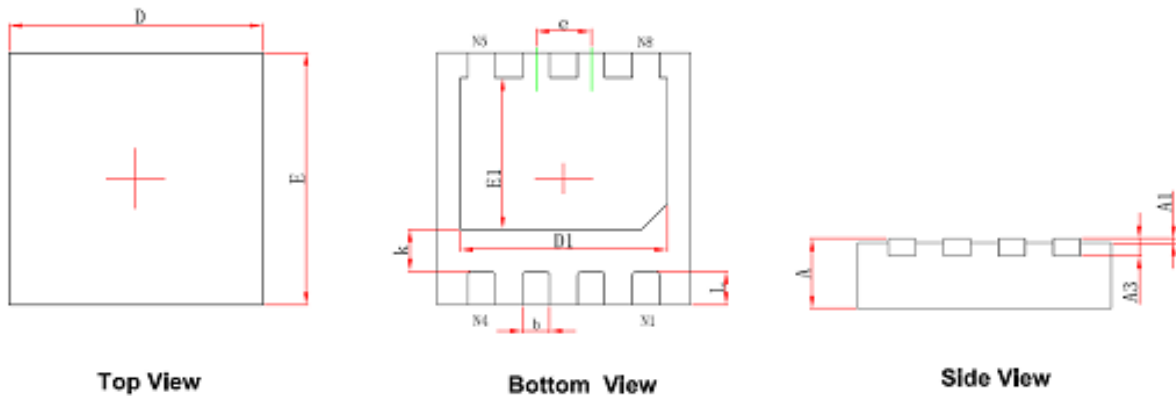


**P-Channel 30-V(D-S) MOSFET**

Typical Characteristics (T<sub>J</sub> = 25°C Noted)



**DFN 3x3 8L Package Outline**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.800	0.900	0.031	0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.924	3.076	0.115	0.121
E	2.924	3.076	0.115	0.121
D1	2.350	2.550	0.093	0.100
E1	1.700	1.900	0.067	0.075
k	0.450	0.550	0.018	0.022
b	0.270	0.370	0.011	0.015
e	0.650TYP.		0.026TYP.	
L	0.324	0.476	0.013	0.019

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