

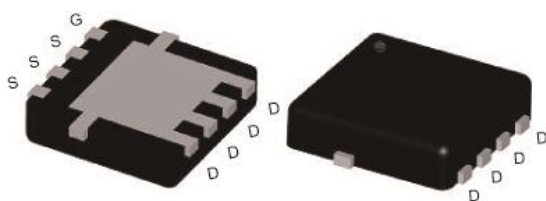
**N-Channel 30V(D-S) Enhancement MOSFET**

**GENERAL DESCRIPTION**

The ME7114S-G is the N-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-side switching , and low in-line power loss are needed in a very small outline surface mount package.

**PIN CONFIGURATION**

DFN(S) 3x3  
Top View

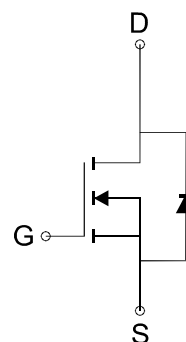


**FEATURES**

- $R_{DS(ON)} \leq 7m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 10.5m\Omega @ V_{GS}=4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

**APPLICATIONS**

- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch



N-Channel MOSFET

**Ordering Information:** ME7114S-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 (Tj=150°C)*	$T_C=25^\circ C$	$I_D$	71			A
	$T_C=70^\circ C$		57			
	$T_A=25^\circ C$		18.4			
	$T_A=70^\circ C$		14.7			
Pulsed Drain Current		$I_{DM}$	74			A
Maximum Power Dissipation*	$T_C=25^\circ C$	$P_D$	52			W
	$T_C=70^\circ C$		33			
	$T_A=25^\circ C$		3.8			
	$T_A=70^\circ C$		2.4			
Operating Junction Temperature		$T_J$	-55 to 150			°C
Thermal Resistance-Junction to Ambient*		$R_{\theta JA}$	Typ	26	Max	33
Thermal Resistance-Junction to Case*		$R_{\theta JC}$	Typ	1.9	Max	2.4

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

## N-Channel 30V(D-S) Enhancement MOSFET

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

Symbol	Parameter	Limit	Min	Typ	Max	Unit
<b>STATIC</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250 μA	30			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	1.0		3.0	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance <sup>a</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> =13A		5.8	7	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =10A		8.5	10.5	
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =2.8A, V <sub>GS</sub> =0V		0.75	1.1	V
<b>DYNAMIC</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =13A		37		nC
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =13A		18		
Q <sub>gs</sub>	Gate-Source Charge			7.7		
Q <sub>gd</sub>	Gate-Drain Charge			8.8		
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, F=1MHz		1690		pF
C <sub>oss</sub>	Output Capacitance			260		
C <sub>rss</sub>	Reverse Transfer Capacitance			84		
R <sub>g</sub>	Gate-Resistance	V <sub>DS</sub> =0V, V <sub>GS</sub> =0V, F=1MHz		0.9		Ω
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DS</sub> =15V, R <sub>L</sub> =15Ω I <sub>D</sub> =1A, V <sub>GEN</sub> =10V R <sub>G</sub> =6Ω		20		ns
t <sub>r</sub>	Turn-On Rise Time			16		
t <sub>d(off)</sub>	Turn-Off Delay Time			63		
t <sub>f</sub>	Turn-Off Fall Time			11		

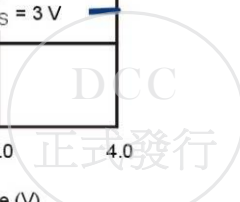
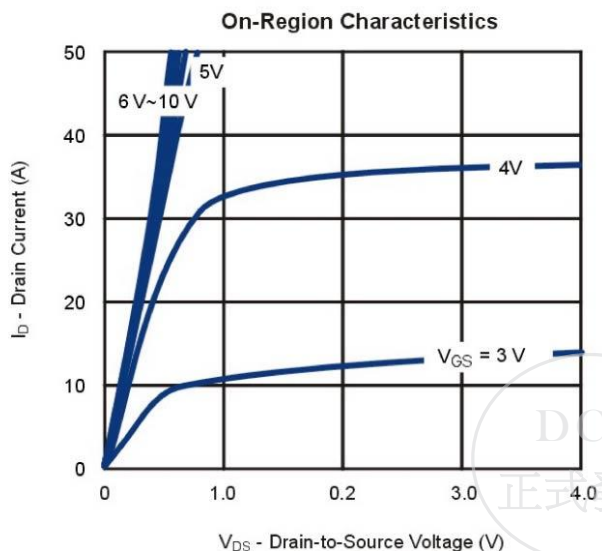
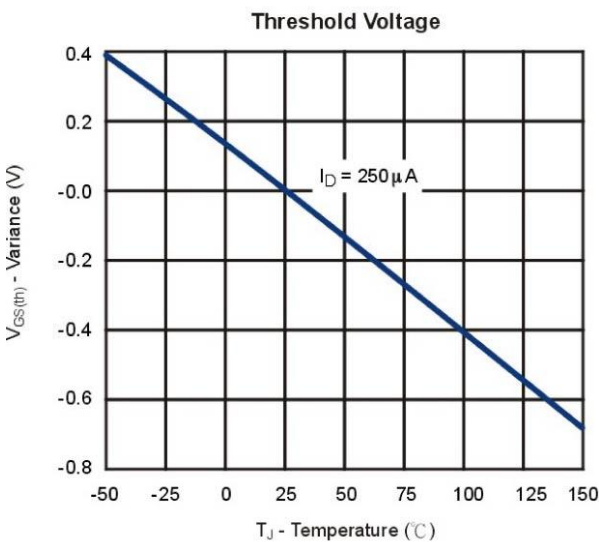
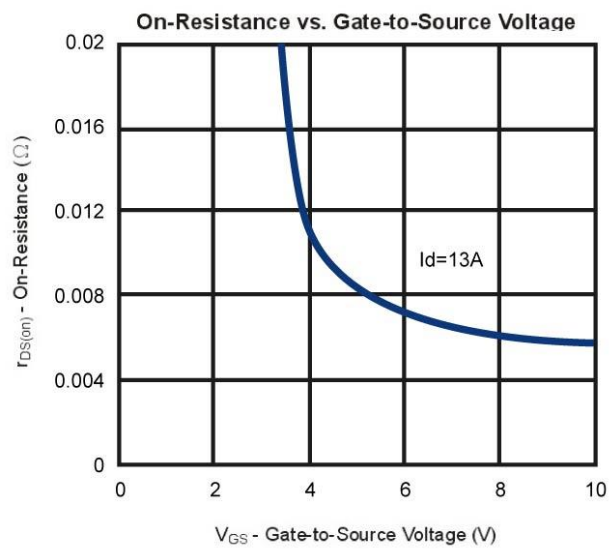
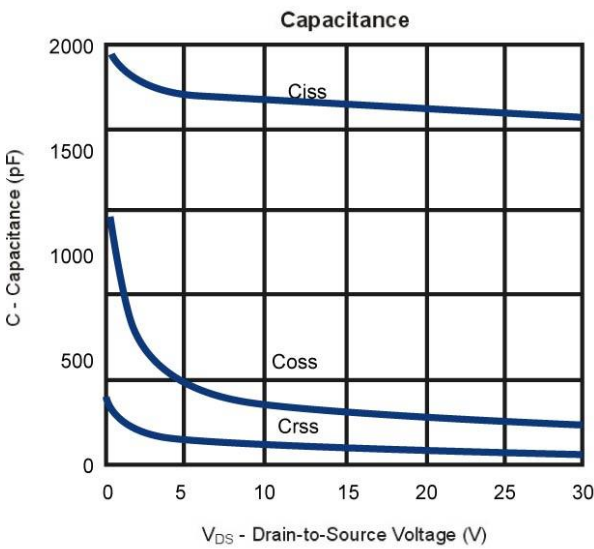
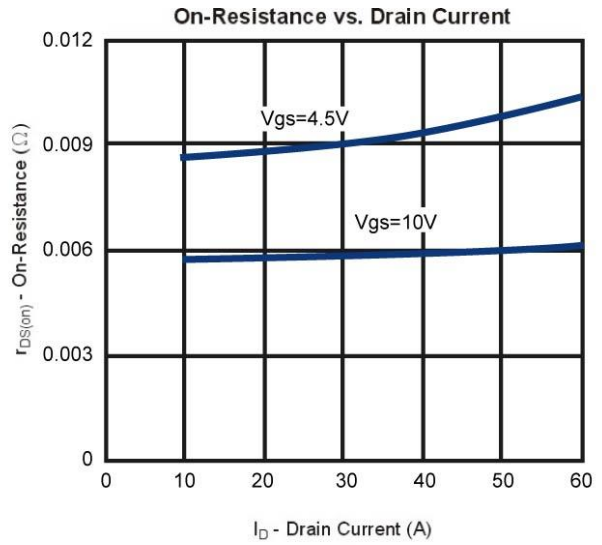
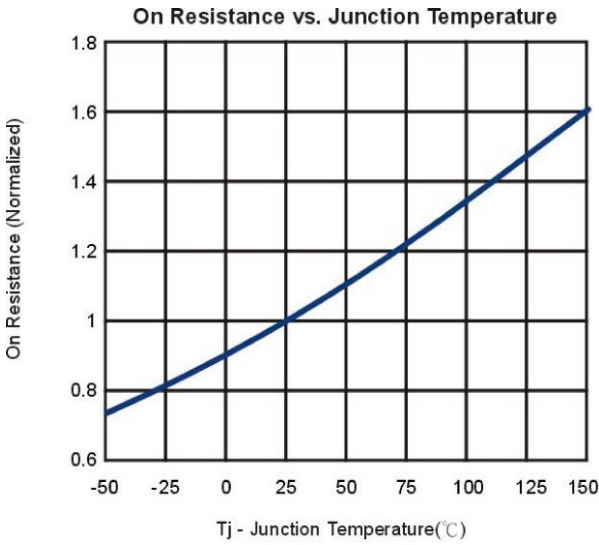
Note: a. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%

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



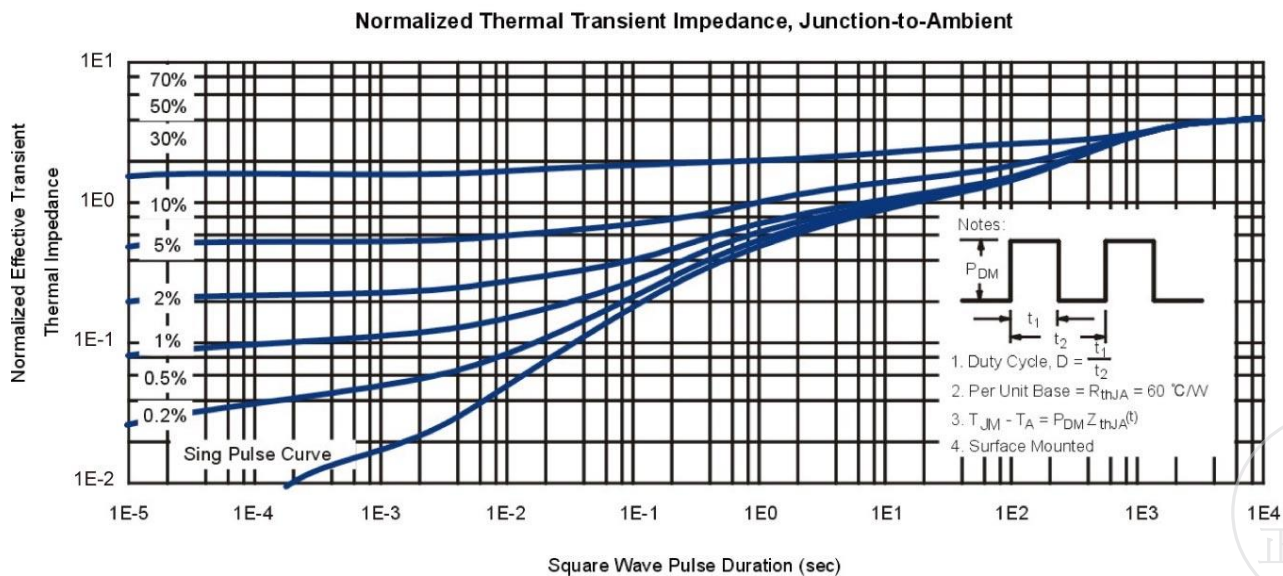
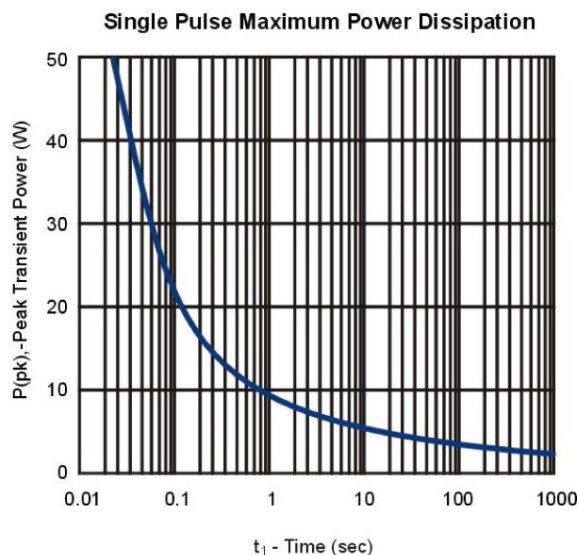
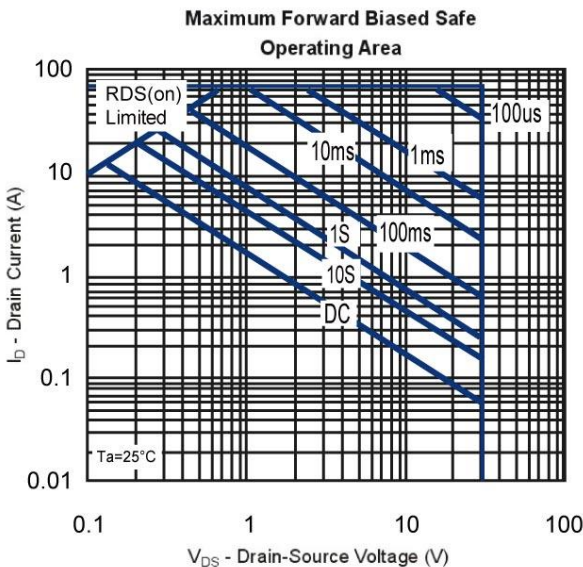
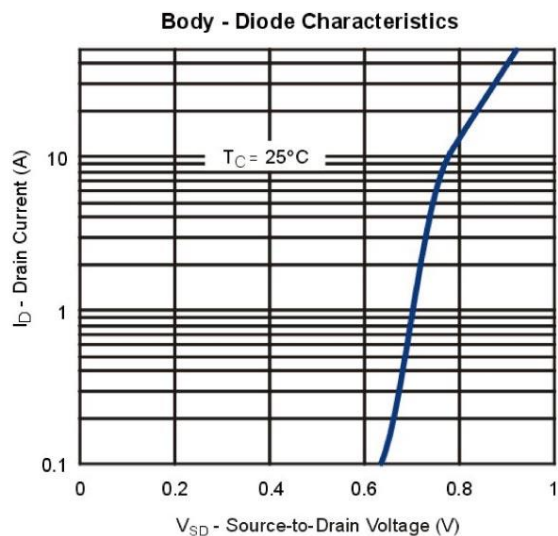
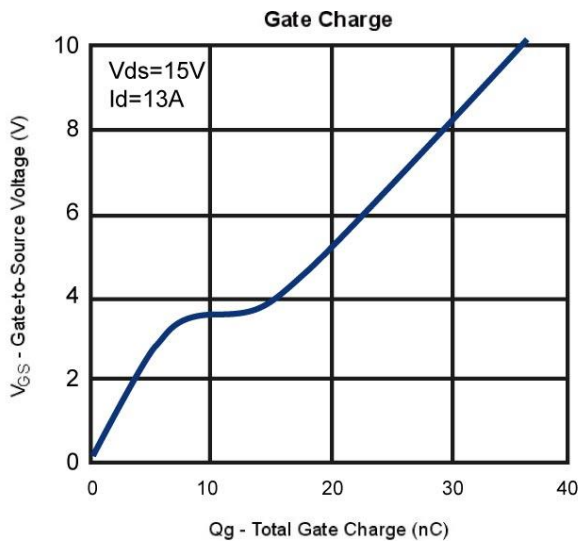
**N-Channel 30V(D-S) Enhancement MOSFET**

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



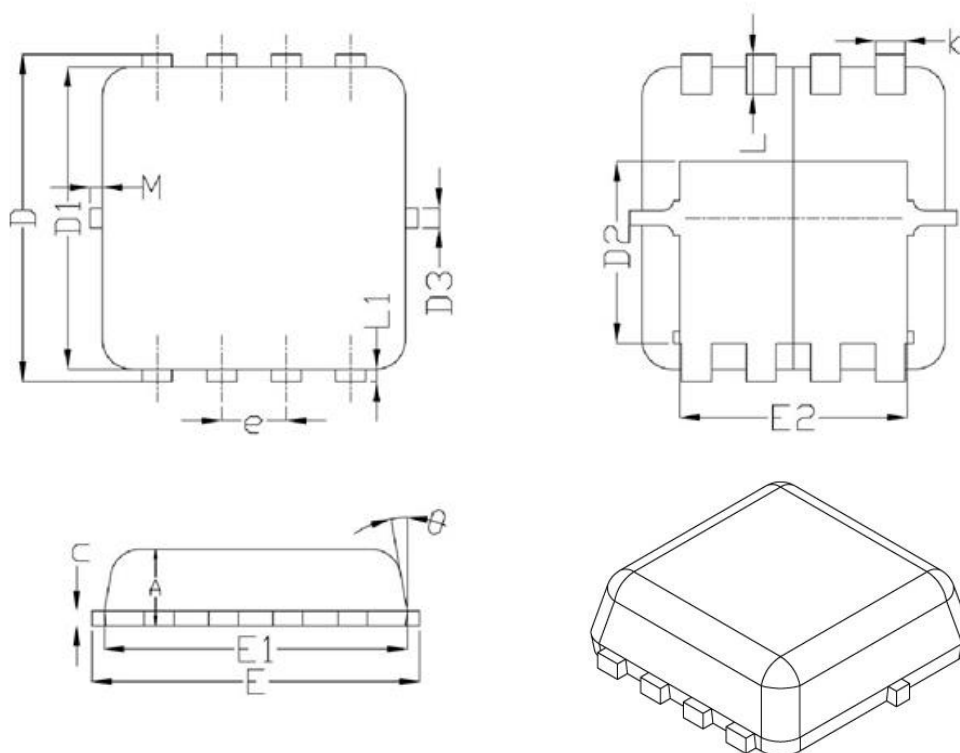
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**Typical Characteristics (T<sub>J</sub> =25°C Noted)**



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**DFN(S) 3x3 Package Outline**



SYMBOL	DIMENSIONAL REQMTS	
	MIN	MAX
A	0.70	0.90
b	0.20	0.40
c	0.08	0.25
D	2.70	3.45
D1	2.20	3.20
D2	1.54	1.98
D3	0.10	0.30
E	3.15	3.45
E1	2.80	3.30
E2	2.25	2.65
e	0.65BSC	
H	0.28	0.68
L	0.30	0.50
L1	0.06	0.20
Θ	---	12°
M	*	0.15
* Not specified		

