Force mos
Matsuki Electric

ME7804AS-G

N-Channel 30V (D-S) MOSFET

GENERAL DESCRIPTION

The ME7804AS 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 high-side switching , and low in-line power loss are needed in a very small outline surface mount package.

FEATURES

- $R_{DS(ON)}$ ≦18 mΩ@V_{GS}=10V
- $R_{DS(ON)}$ ≦30 mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

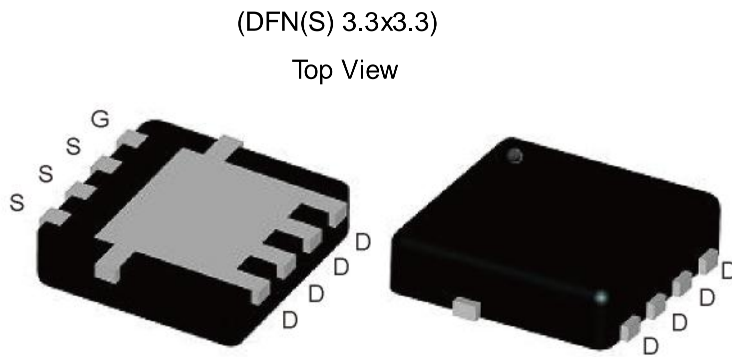
APPLICATIONS

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

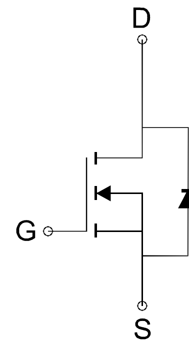
PIN CONFIGURATION

(DFN(S) 3.3x3.3)

Top View



Ordering Information: ME7804AS-G (Green product-Halogen free)



N-Channel MOSFET

Absolute Maximum Ratings (T_A=25℃ Unless Otherwise Noted)

Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current*	T_A=25℃	I_D	11.5	A
	T_A=70℃		9.2	
	T_C=25℃		26.9	
	T_C=100℃		17	
Pulsed Drain Current		I_{DM}	46	A
Maximum Power Dissipation*	T_A=25℃	P_D	3.8	W
	T_A=70℃		2.4	
	T_C=25℃		20.8	
	T_C=100℃		8.3	
Operating Junction Temperature		T_J	-55 to 150	℃
Thermal Resistance-Junction to Ambient*		$R_{θJA}$	33	℃/W
Thermal Resistance-Junction to Case*		$R_{θJC}$	6	℃/W

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

N-Channel 30V (D-S) MOSFET

Electrical Characteristics (T_A=25℃ Unless Otherwise Specified)

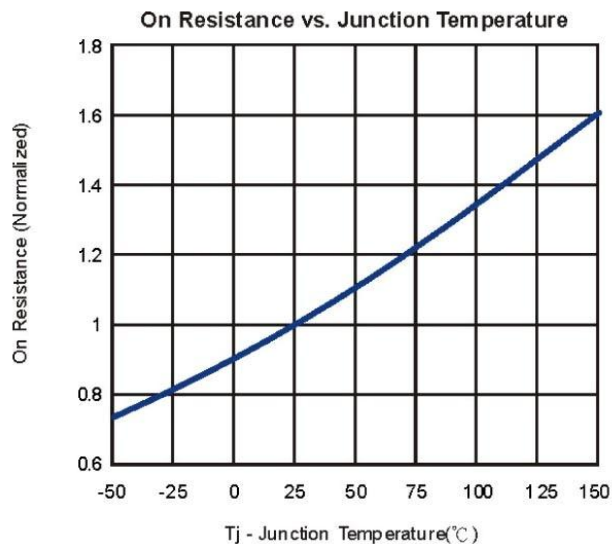
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250 μA	30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250 μA	1.0		3.0	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	μA
$R_{DS(ON)}$	Drain-Source On-State Resistance [a]	V_{GS}=10V, I_D= 10A		14	18	mΩ
		V_{GS}=4.5V, I_D= 5A		23	30	
g_{FS}	Forward Transconductance	V_{DS}=5V, I_D=8A		14		S
V_{SD}	Diode Forward Voltage	I_S=2.3A, V_{GS}=0V		0.76	1.1	V
DYNAMIC						
Qg	Gate Charge	V_{DS}=15V, V_{GS}=10V, I_D=10A		15.5		nC
Qgt	Total Gate Charge	V_{DS}=15V, V_{GS}=4.5V, I_D=10A		7.8		
Qgs	Gate-Source Charge			3.2		
Qgd	Gate-Drain Charge			3.8		
Ciss	Input capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz		535		pF
Coss	Output Capacitance			95		
Crss	Reverse Transfer Capacitance			30		
Rg	Gate Resistance	V_{DS}=0V, V_{GS}=0V, F=1MHz		0.9		Ω
td(on)	Turn-On Delay Time	V_{DD}=25V, R_L =25Ω I_D=1A, V_{GEN}=10V R_G=6Ω		12		ns
tr	Turn-On Rise Time			9		
td(off)	Turn-Off Delay Time			39		
tf	Turn-Off Fall Time			6		

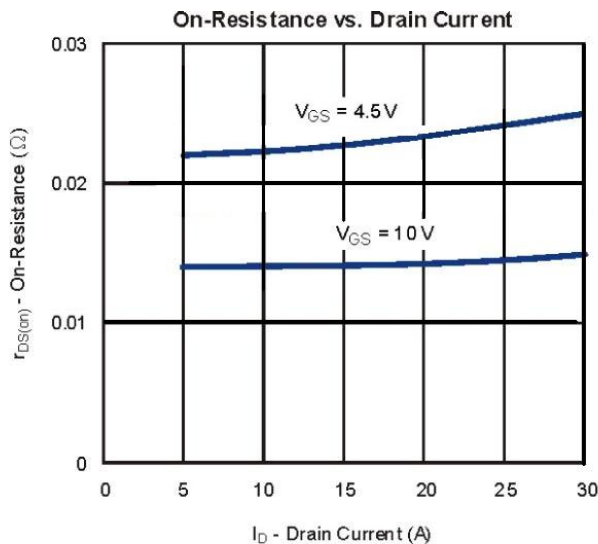
Notes: a. Pulse test: pulse width≦ 300us, duty cycle≦ 2%, Guaranteed by design, not subject to production testing.

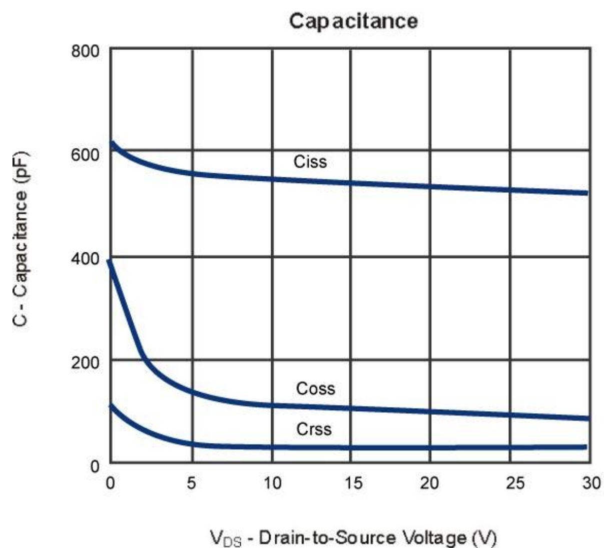
b. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.

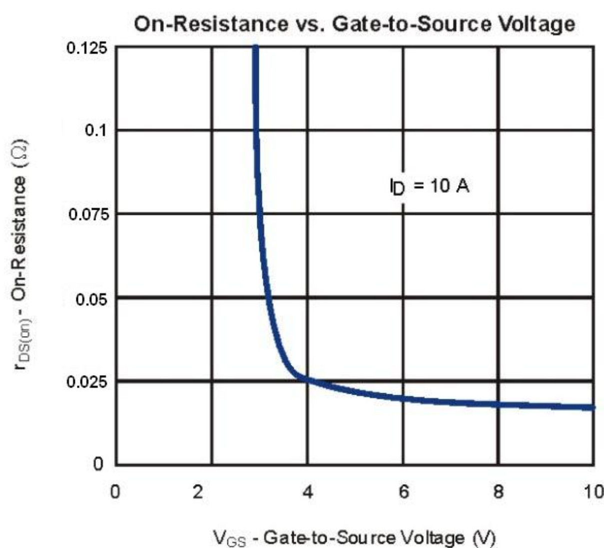
N-Channel 30V (D-S) MOSFET

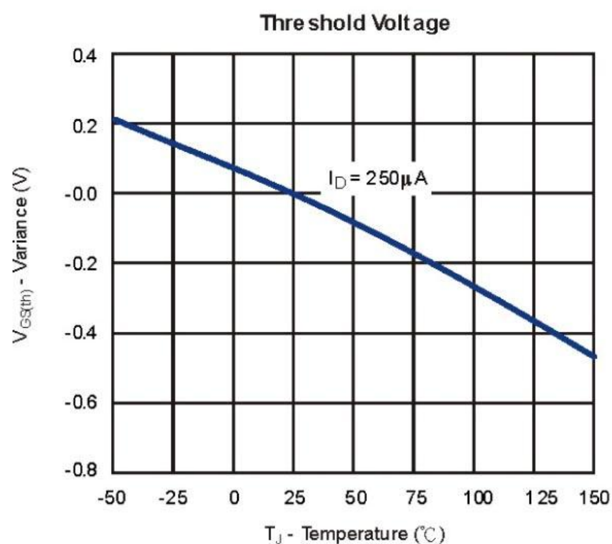
Typical Characteristics (TJ =25℃ Noted)

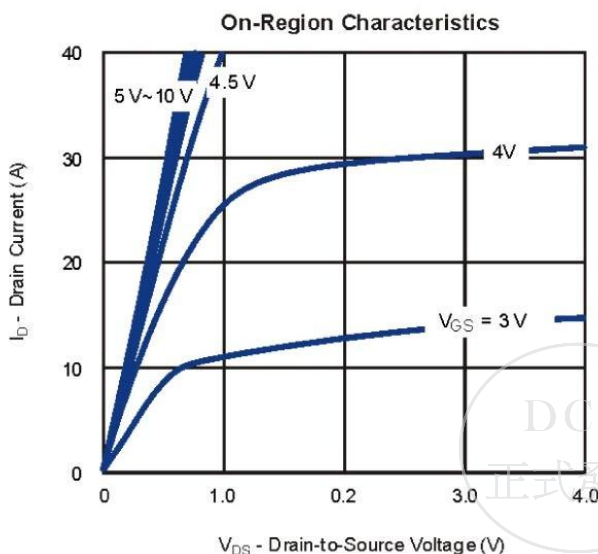












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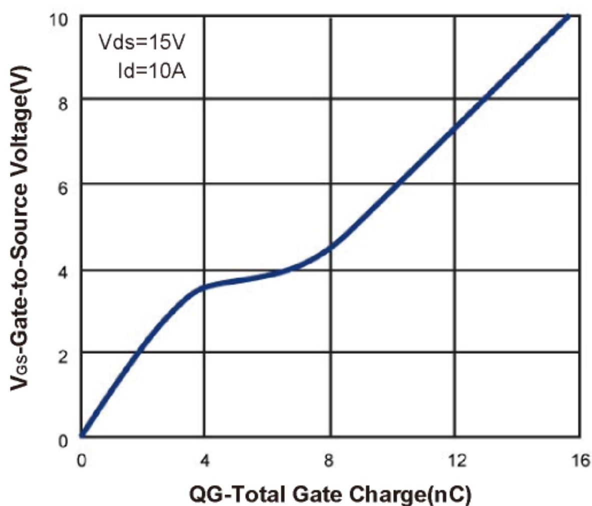
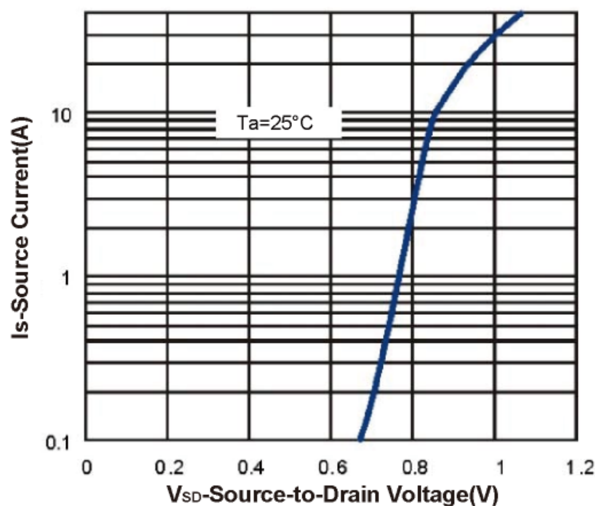
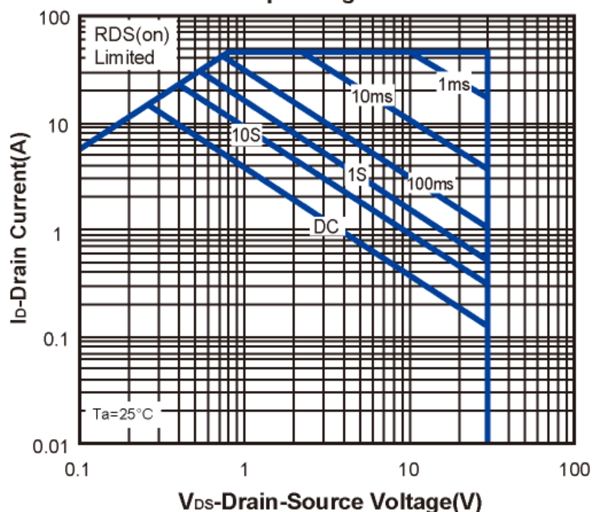
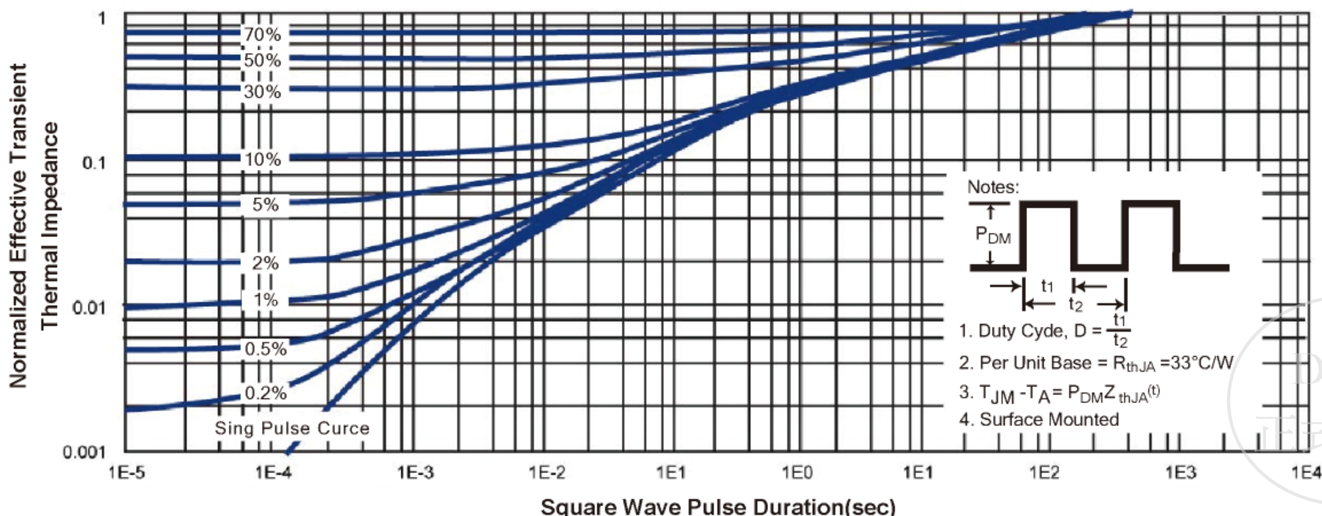
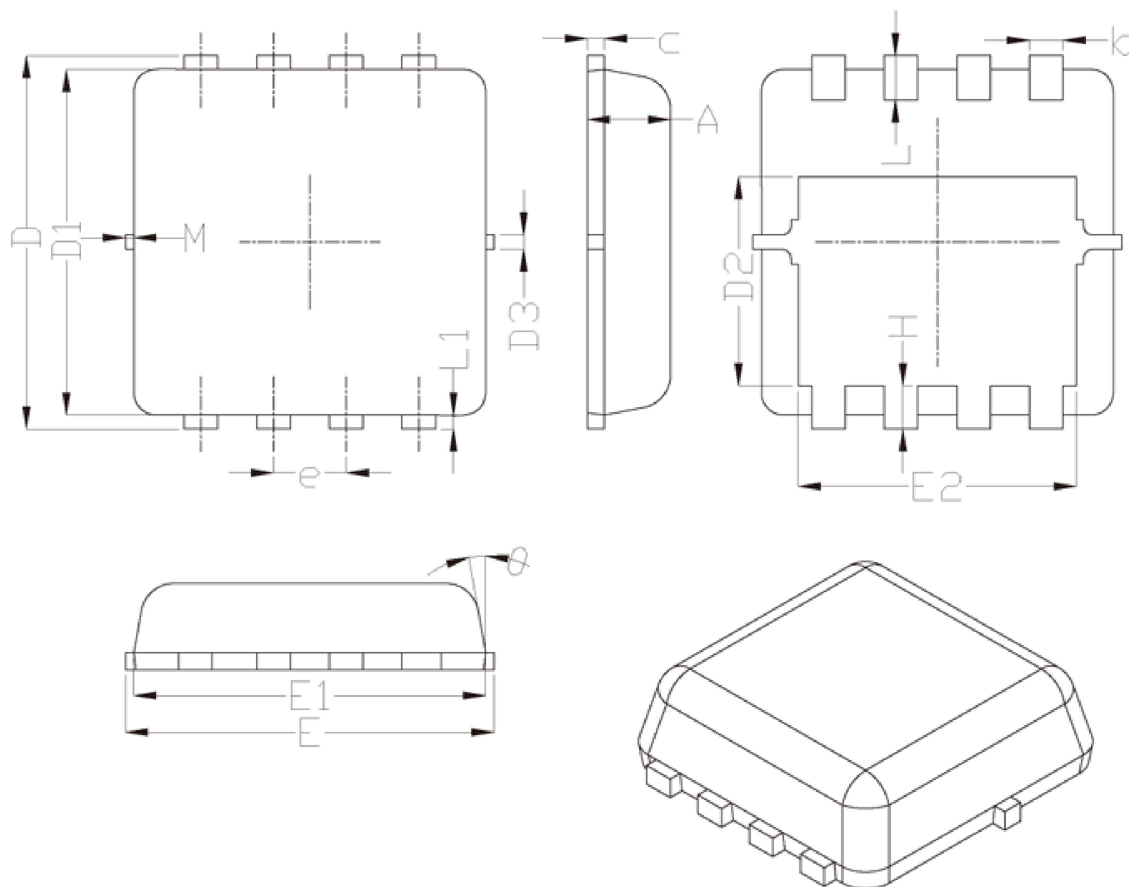








DFN(S) 3.3x3.3 Package Outline



SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	---	0.13	---
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	---	0.13	---
θ	---	10°	12°
M	*	*	0.15
* Not specified			