

N-Channel 30V (D-S) MOSFET, ESD Protected

GENERAL DESCRIPTION

The ME7804-G 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.

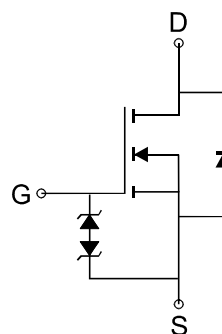
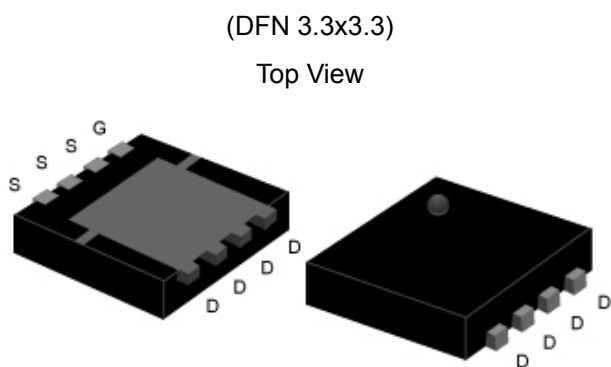
FEATURES

- $R_{DS(ON)} \leq 16m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 25m\Omega @ V_{GS}=4.5V$

APPLICATIONS

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

PIN CONFIGURATION

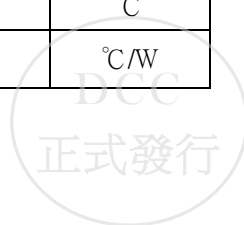


Ordering Information: ME7804S-G (Green product-Halogen free)

Absolute Maximum Ratings (T_j=25°C 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	I _D	T _A =25°C	12.2
		T _A =70°C	9.7
Pulsed Drain Current	I _{DM}	50	A
Maximum Power Dissipation	P _D	T _A =25°C	3.8
		T _A =70°C	2.4
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55 to 150	°C
Thermal Resistance-Junction to Ambient*	R _{θJA}	33	°C/W

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



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Electrical Characteristics (TA=25°C 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		3	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±16V			±10	μA
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		13	16	mΩ
		V _{GS} =4.5V, I _D =5A		19	25	
V _{SD}	Diode Forward Voltage	I _S =9A, V _{GS} =0V		0.8		V
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =10A		18		nC
Q _g	Total Gate Charge			8.8		
Q _{gs}	Gate-Source Charge	V _{DS} =15V, V _{GS} =4.5V, I _D =10A		4.2		
Q _{gd}	Gate-Drain Charge			3.7		
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		729		pF
C _{oss}	Output Capacitance			94		
C _{rss}	Reverse Transfer Capacitance			29		
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz		0.9		Ω
t _{d(on)}	Turn-On Delay Time	V _{DS} =25V, R _L =25Ω R _{GEN} =6Ω, V _{GS} =10V		14		ns
t _r	Turn-On Rise Time			9.5		
t _{d(off)}	Turn-Off Delay Time			44		
t _f	Turn-Off Fall Time			5.7		

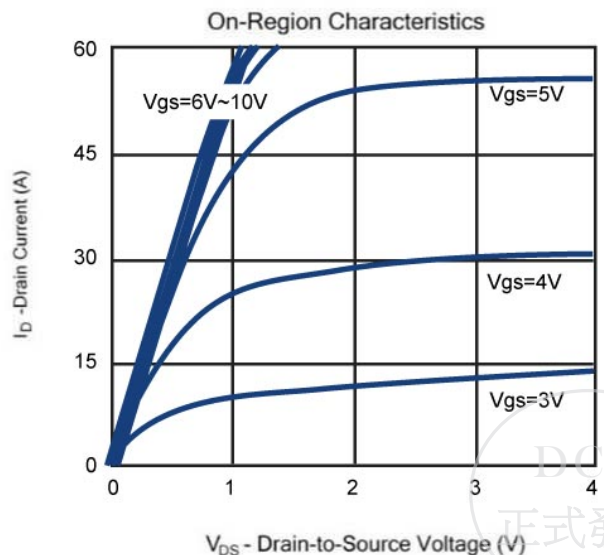
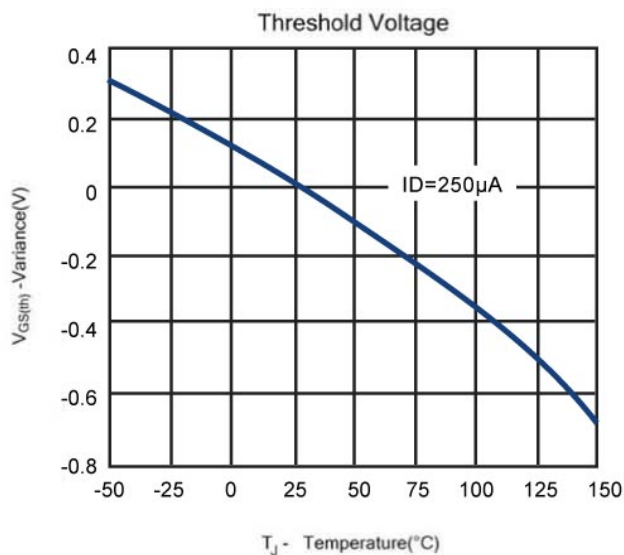
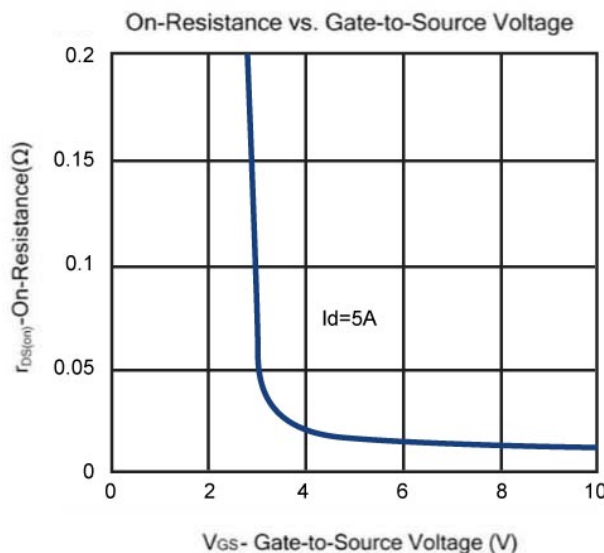
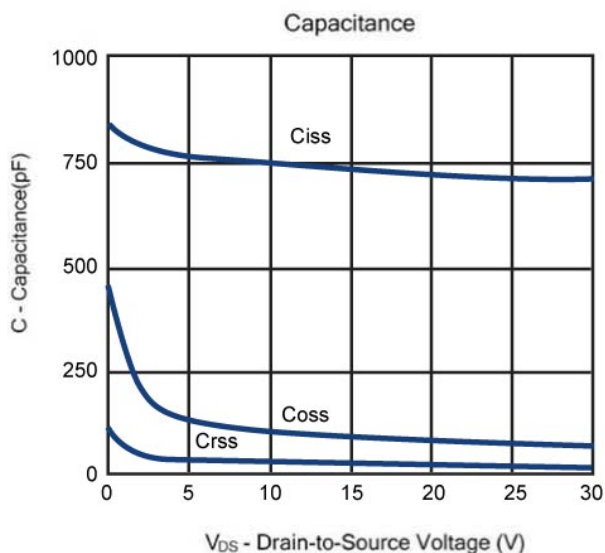
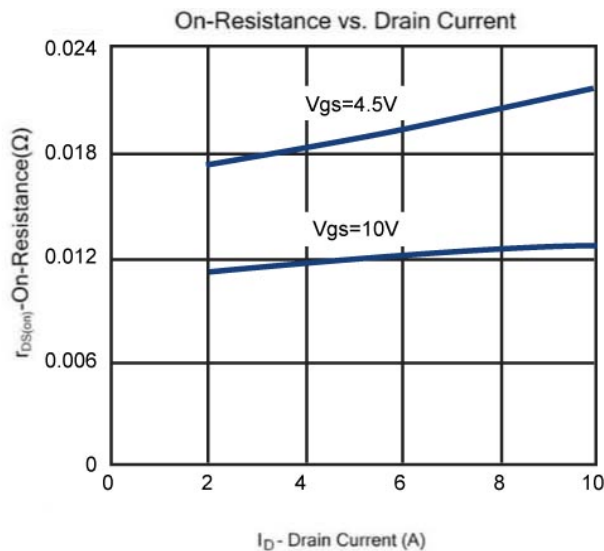
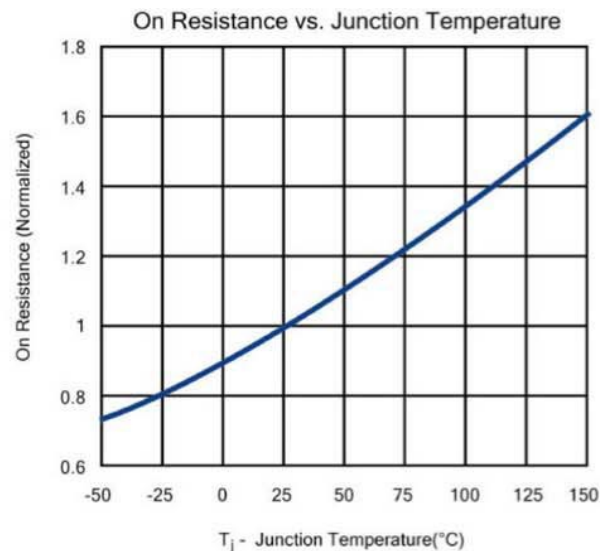
Notes: a. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%, Guaranteed by design, not subject to production testing.

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



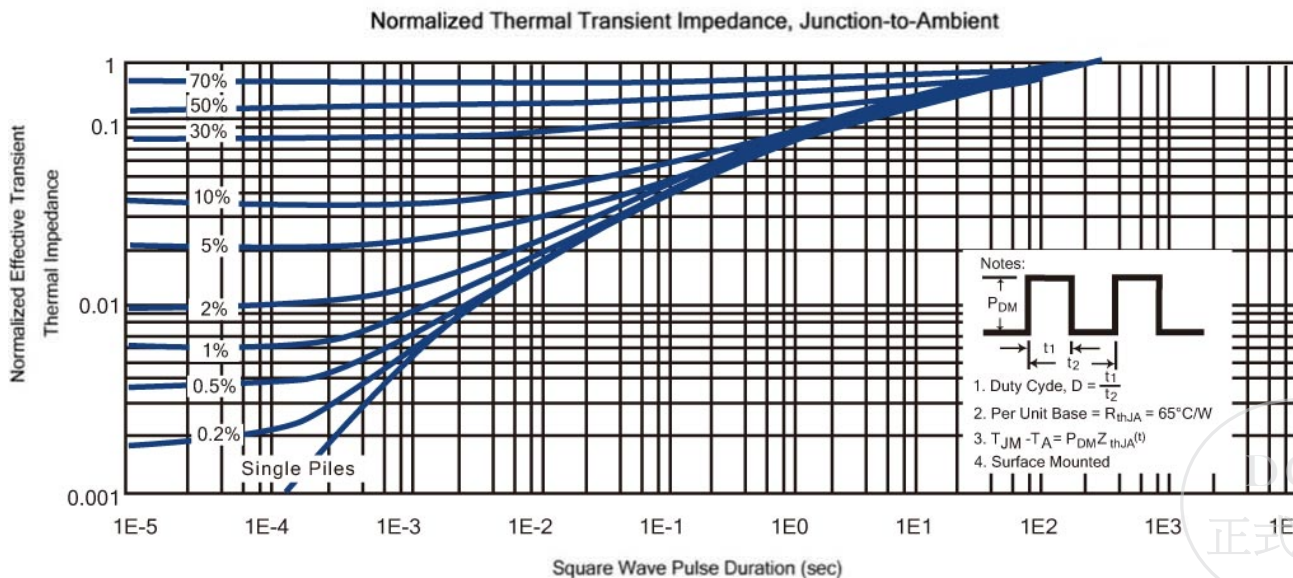
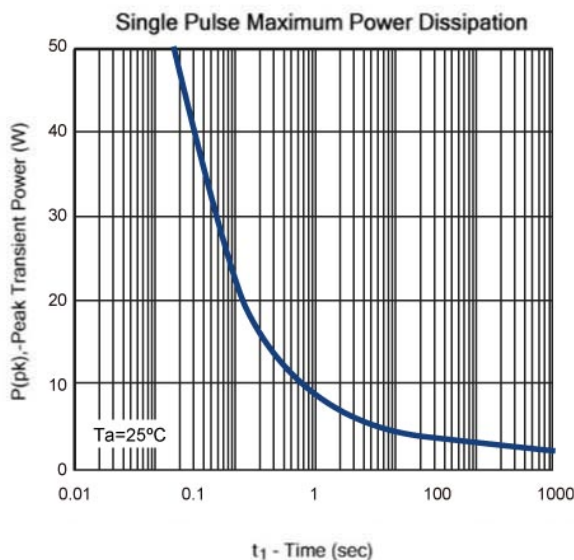
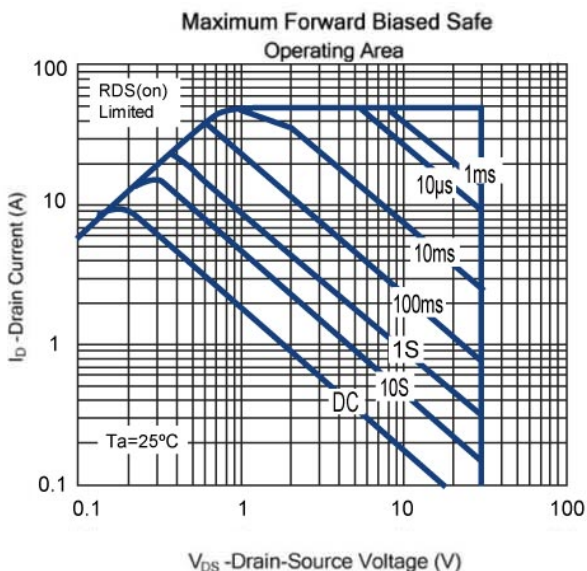
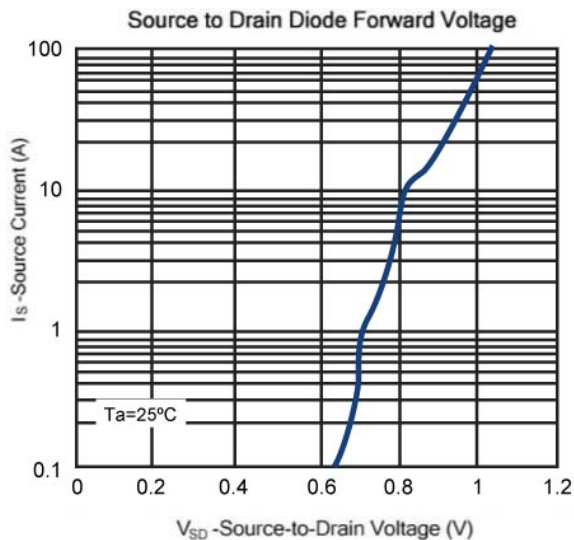
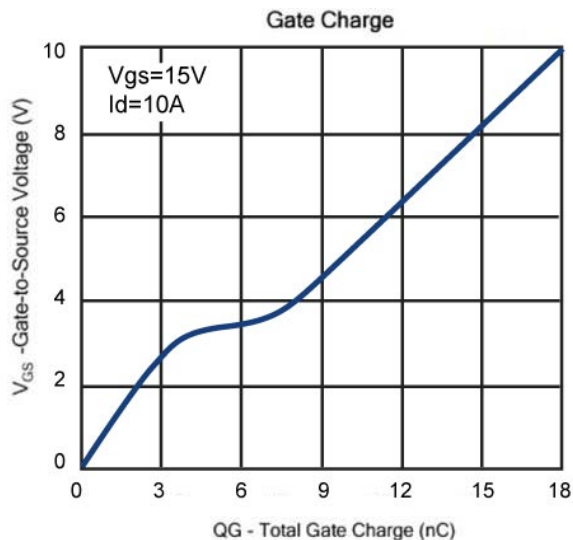
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Typical Characteristics (T_J =25°C Noted)

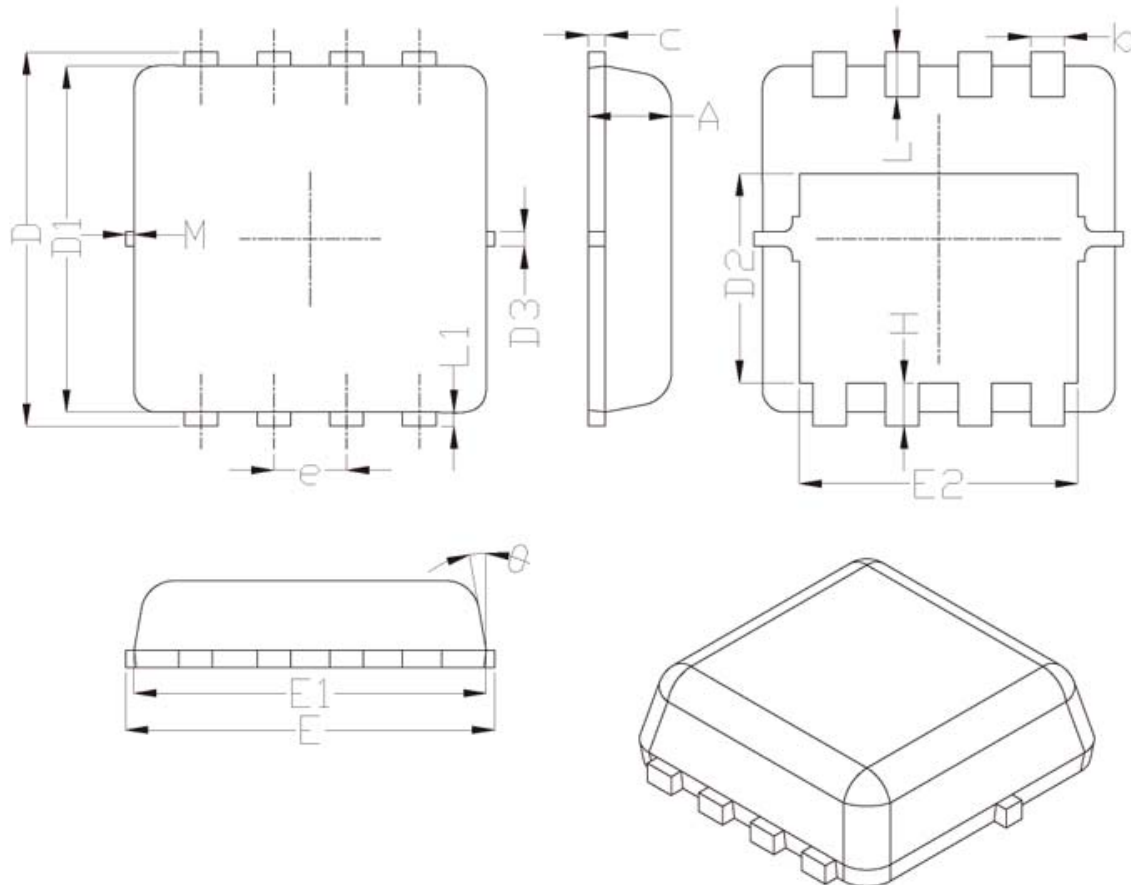


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DFN(S) 3.3x3.3 Package Outline



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



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