

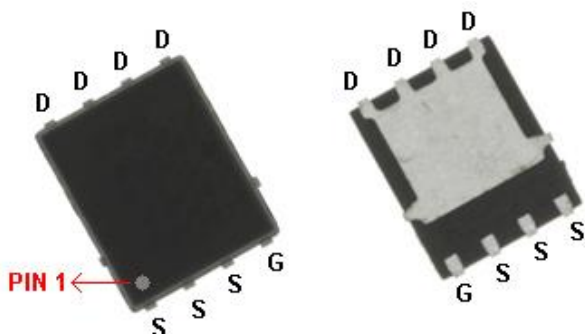
N-Channel 30V(D-S) Enhancement MOSFET

GENERAL DESCRIPTION

The ME7170-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 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

PowerDFN 5x6

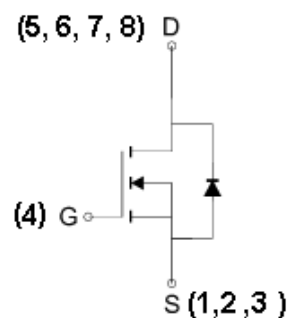


FEATURES

- $R_{DS(ON)} \leq 2.6m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 3.9m\Omega @ V_{GS}=4.5V$
- 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
- NB/MB Vcore Low side switching
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch



N-Channel MOSFET

Ordering Information: ME7170-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}	± 20	V
Continuous Drain Current*	$T_A=25^\circ C$	I_D	110	A
	$T_A=70^\circ C$		90	
Pulsed Drain Current		I_{DM}	450	A
Maximum Power Dissipation*	$T_A=25^\circ C$	P_D	56	W
	$T_A=70^\circ C$		36	
Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ C$
Thermal Resistance-Junction to Case*		$R_{\theta JC}$	2.2	$^\circ C/W$

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

DCC
正式發行

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

Electrical Characteristics (T_J =25℃ Unless Otherwise Specified)

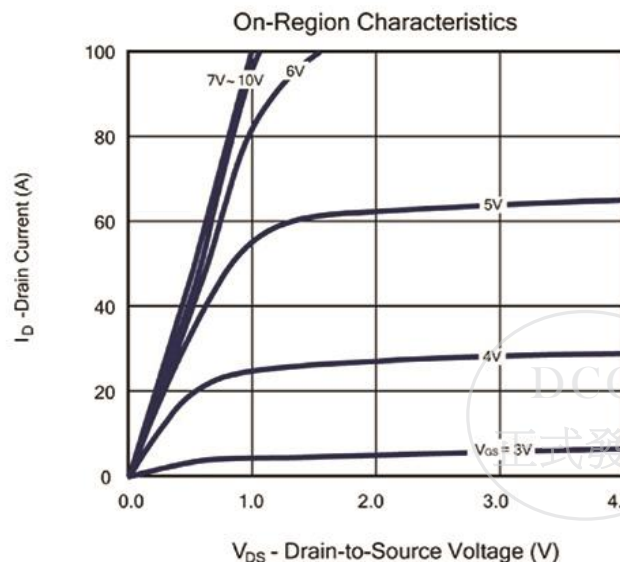
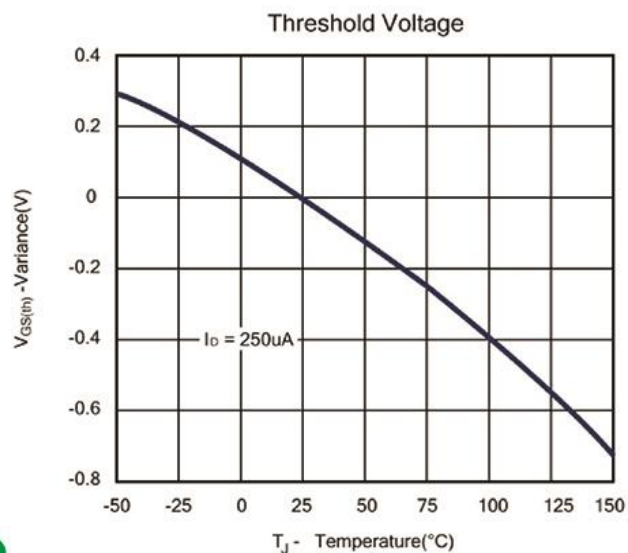
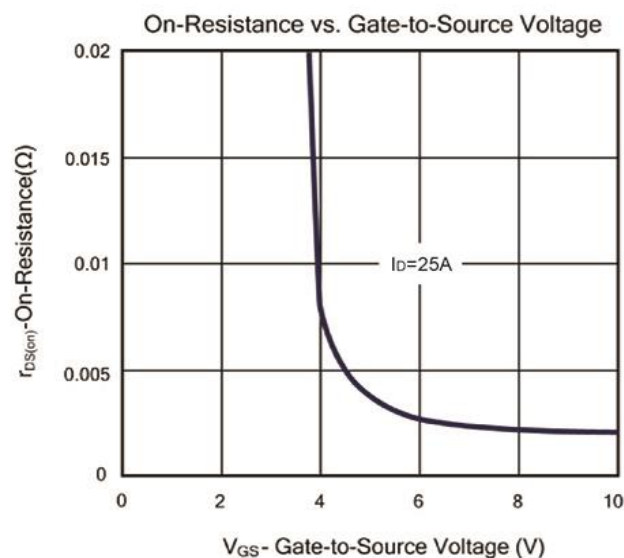
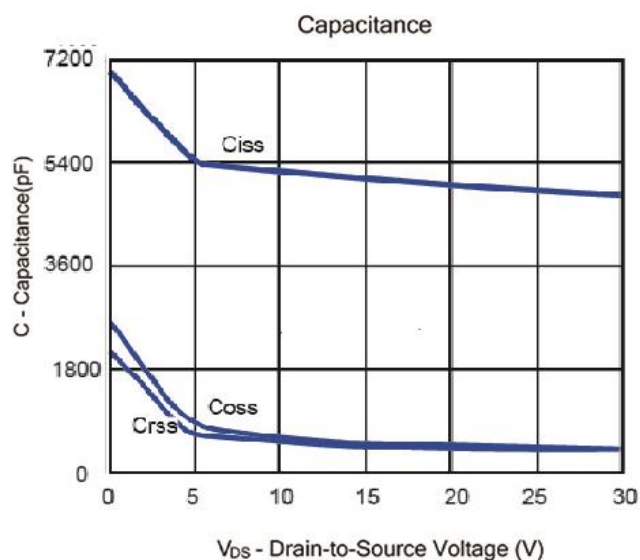
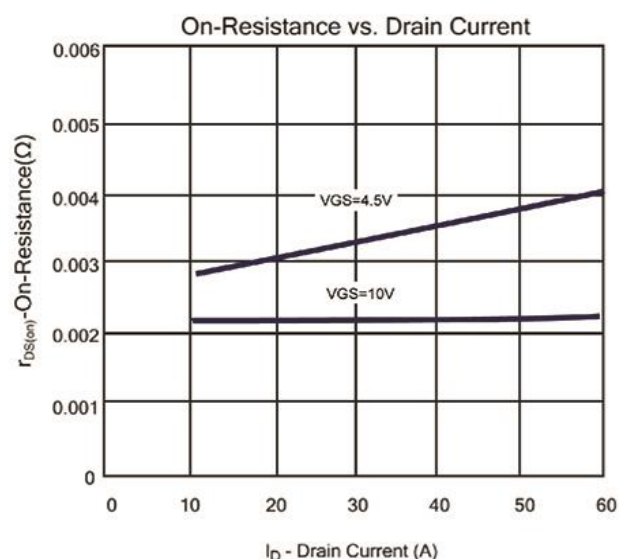
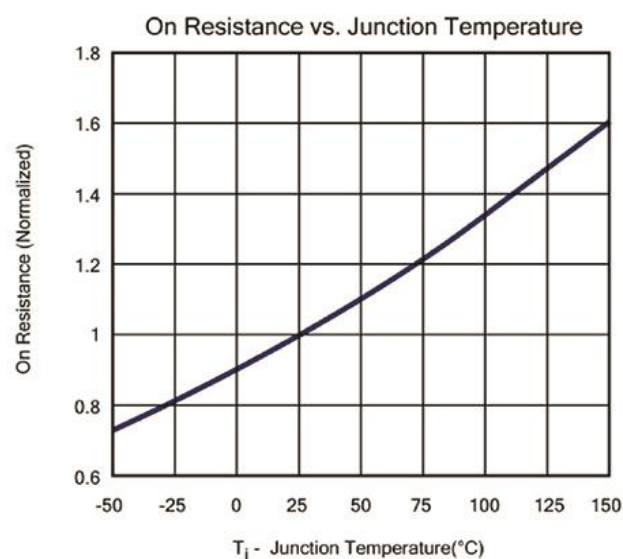
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	1		2.2	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-State Resistance ^a	V _{GS} =10V, I _D =25A		2.1	2.6	mΩ
		V _{GS} =4.5V, I _D =19A		3	3.9	
V _{SD}	Diode Forward Voltage	I _S =25A, V _{GS} =0V		0.8	1.2	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =20A		102		nC
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _D =20A		49		nC
Q _{gs}	Gate-Source Charge			16		
Q _{gd}	Gate-Drain Charge			22		
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, F=1MHz		5024		pF
C _{oss}	Output Capacitance			514		
C _{rss}	Reverse Transfer Capacitance			445		
t _{d(on)}	Turn-On Delay Time	V _{DS} =15V, R _L =15Ω V _{GS} =10V, R _G =6Ω I _D =1A		33		ns
t _r	Turn-On Rise Time			21		
t _{d(off)}	Turn-Off Delay Time			140		
t _f	Turn-Off Fall Time			31		

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.

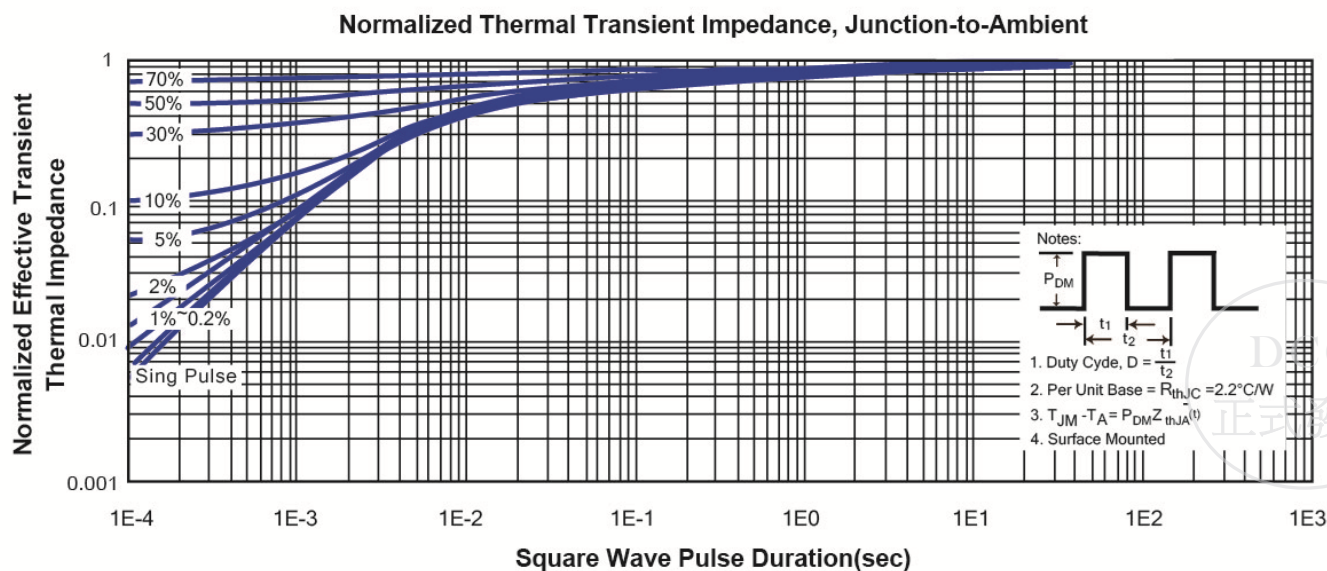
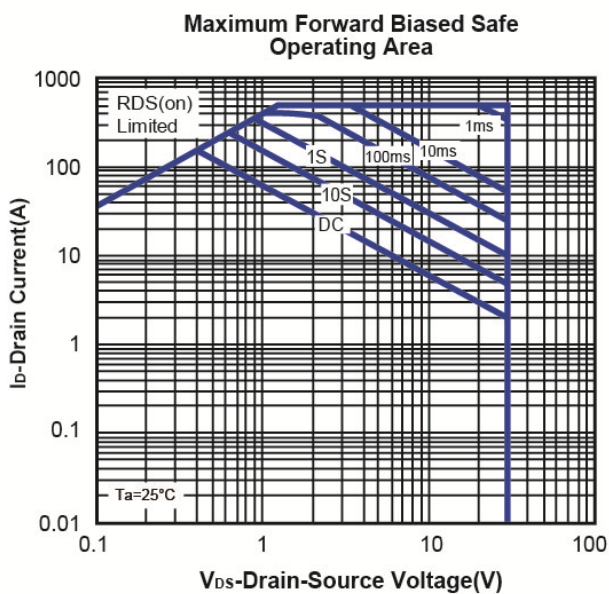
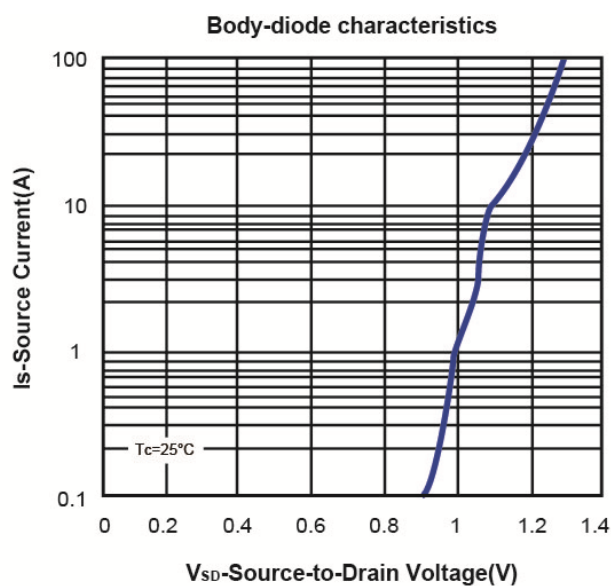
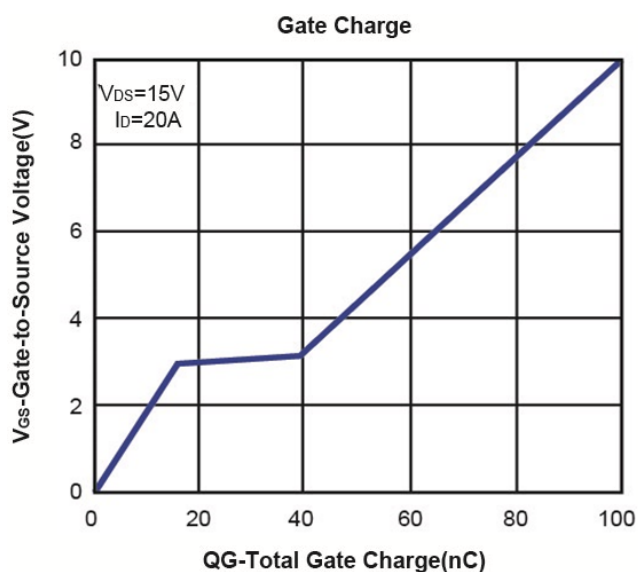


Typical Characteristics ($T_J = 25^\circ\text{C}$ Noted)

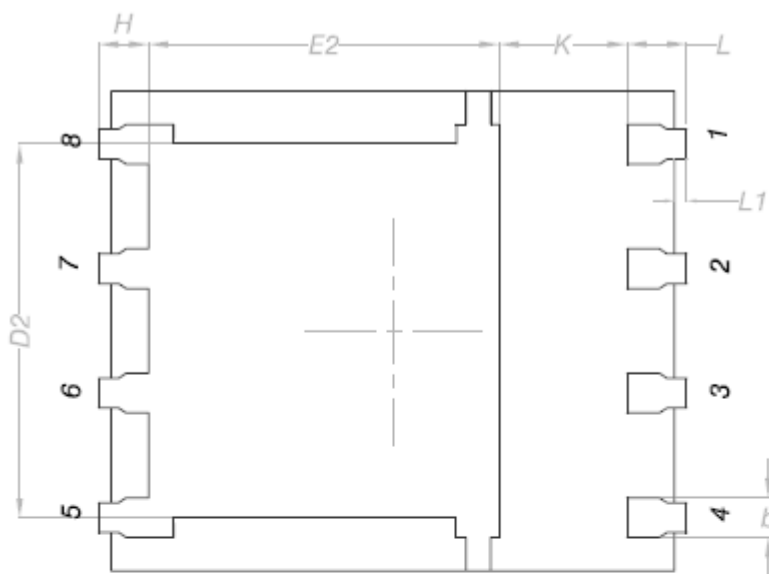


N-Channel 30V(D-S) Enhancement MOSFET

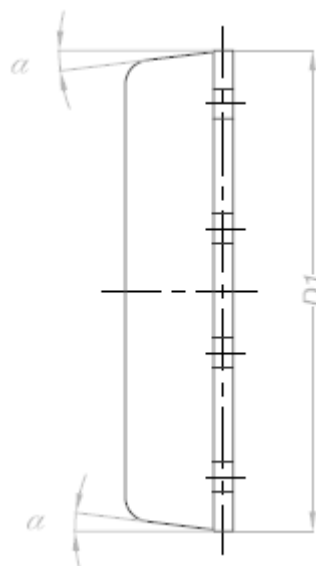
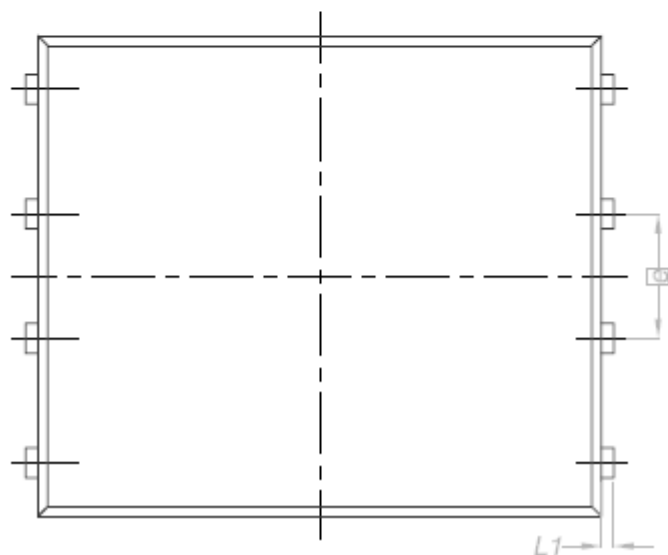
Typical Characteristics (T_J = 25°C Noted)



PowerDFN 5x6 Package Outline



BACKSIDE VIEW



DIM.	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
b	0.33	0.41	0.51
C	0.20	0.25	0.30
D1	4.80	4.90	5.00
D2	3.61	3.81	3.96
E	5.90	6.00	6.10
E1	5.70	5.75	5.80
E2	3.38	3.58	3.78
e	1.27 BSC		
H	0.41	0.51	0.61
K	1.10	-	-
L	0.51	0.61	0.71
L1	0.06	0.13	0.20
α	0°	-	12°

DCC
正式發行