

N- Channel 60V (D-S) MOSFET

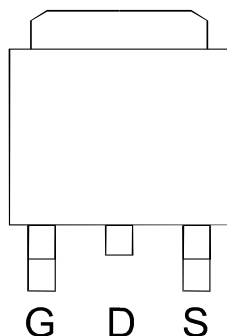
GENERAL DESCRIPTION

The ME50N06A 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 LCD inverter, computer power management and DC to DC converter circuits which need low in-line power loss.

PIN CONFIGURATION

(TO-252-3L)

Top View

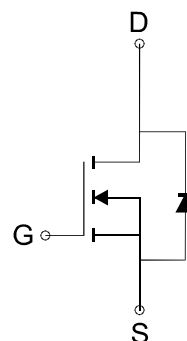


FEATURES

- $R_{DS(ON)} \leq 22m\Omega @ V_{GS}=10V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- Power Management
- DC/DC Converter
- LCD TV & Monitor Display inverter
- CCFL inverter
- Secondary Synchronous Rectification



N-Channel MOSFET

Ordering Information: ME50N06A (Pb-free)

ME50N06A-G (Green product-Halogen free)

Absolute Maximum Ratings ($T_c=25^\circ\text{C}$ Unless Otherwise Noted)

Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_c=25^\circ\text{C}$	I_D	35.1	A
	$T_c=70^\circ\text{C}$		28.1	
Pulsed Drain Current		I_{DM}	140	A
Maximum Power Dissipation	$T_c=25^\circ\text{C}$	P_D	59.5	W
	$T_c=70^\circ\text{C}$		38.1	
Operating Junction Temperature		T_J	-55 to 150	$^\circ\text{C}$
Thermal Resistance-Junction to Case*		$R_{\theta JC}$	2.1	$^\circ\text{C/W}$

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

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Electrical Characteristics (Tc =25℃ Unless Otherwise Specified)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
STATIC						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2		4	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-State Resistance ^a	V _{GS} =10V, I _D = 50A		17	22	mΩ
V _{SD}	Diode Forward Voltage	I _S =50A, V _{GS} =0V		1.0	1.2	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DD} =48V, V _{GS} =10V, I _D =50A		37.1		nC
Q _g	Total Gate Charge	V _{DD} =48V, V _{GS} =4.5V, I _D =50A		10.9		
Q _{gs}	Gate-Source Charge			14.3		
Q _{gd}	Gate-Drain Charge			8.3		
C _{iss}	Input capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		2286		pF
C _{oss}	Output Capacitance			172		
C _{rss}	Reverse Transfer Capacitance			53		
t _{d(on)}	Turn-On Delay Time	V _{DS} =30V, V _{GS} =10V, R _G =3.6Ω, R _L =30Ω I _D =1A		27.7		ns
t _r	Turn-On Rise Time			5.1		
t _{d(off)}	Turn-Off Delay Time			54.2		
t _f	Turn-Off Fall Time			5.5		

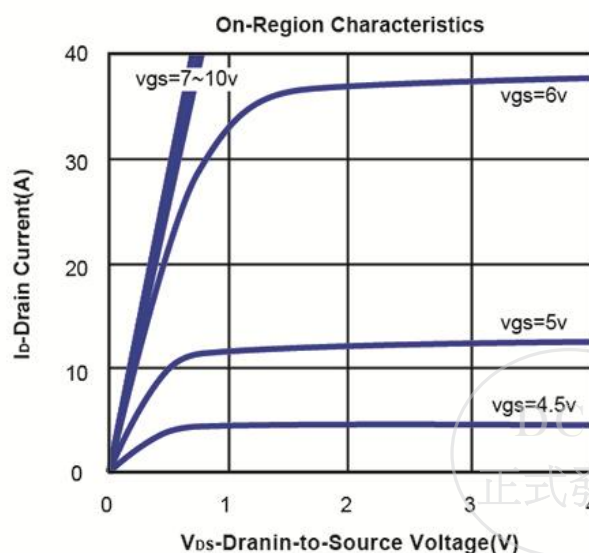
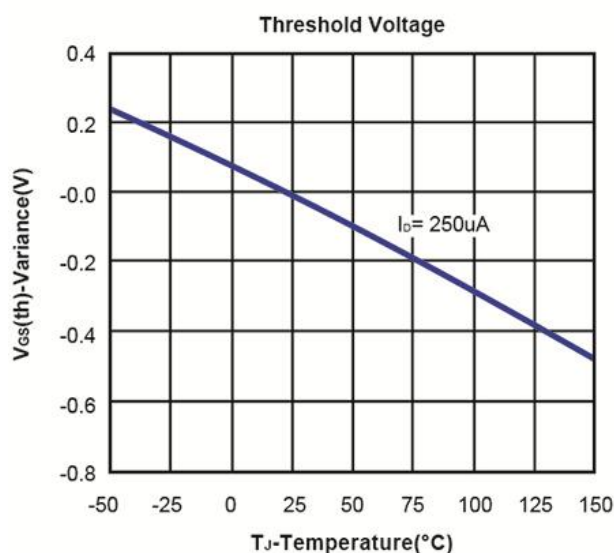
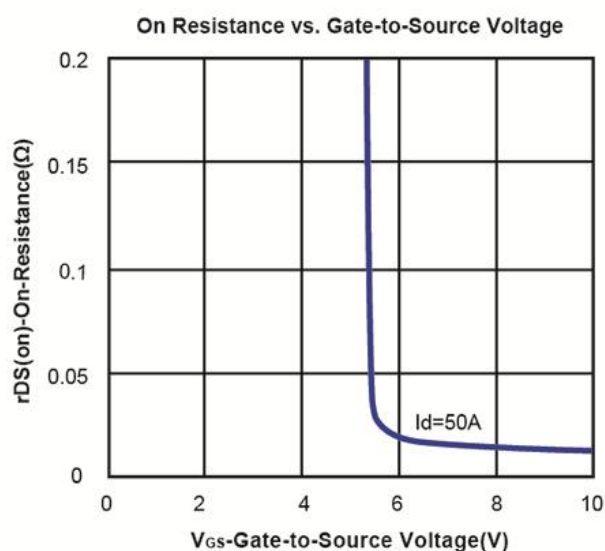
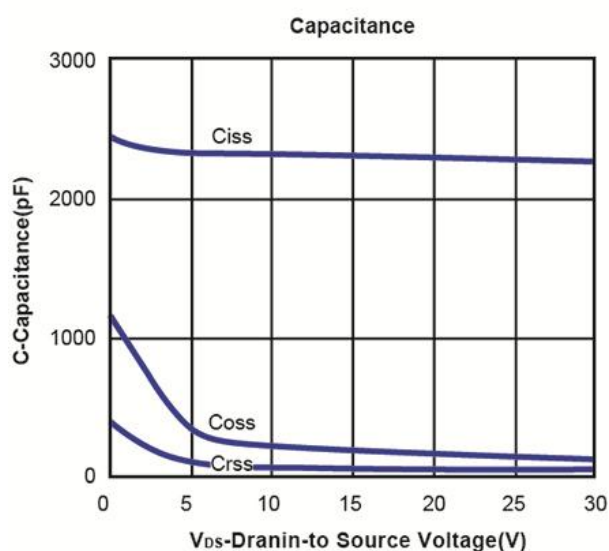
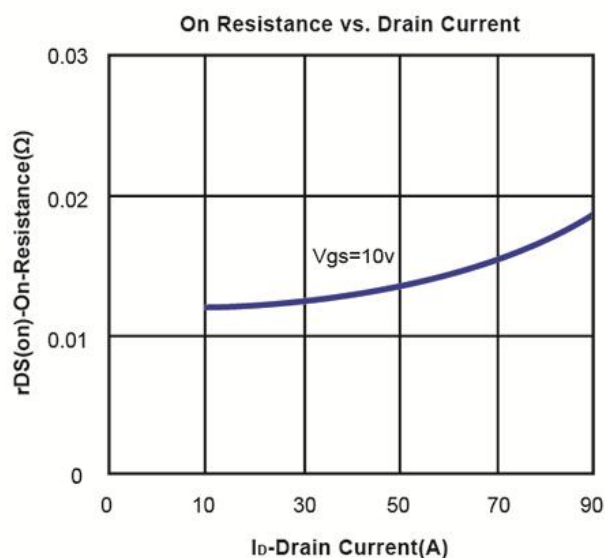
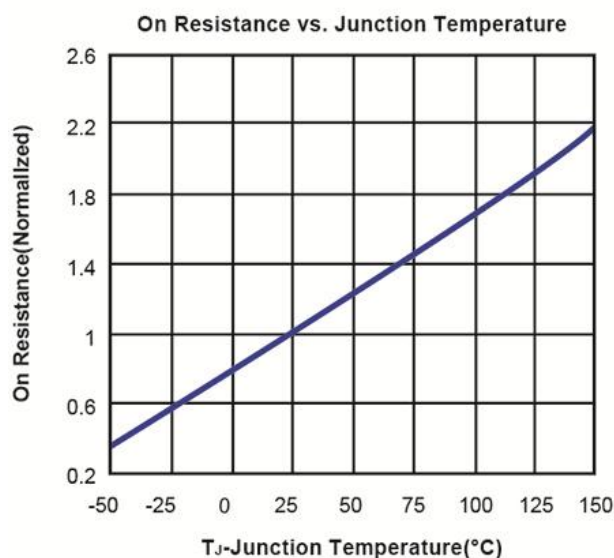
Notes: a. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%, Guaranteed by design, not subject to production testing.

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



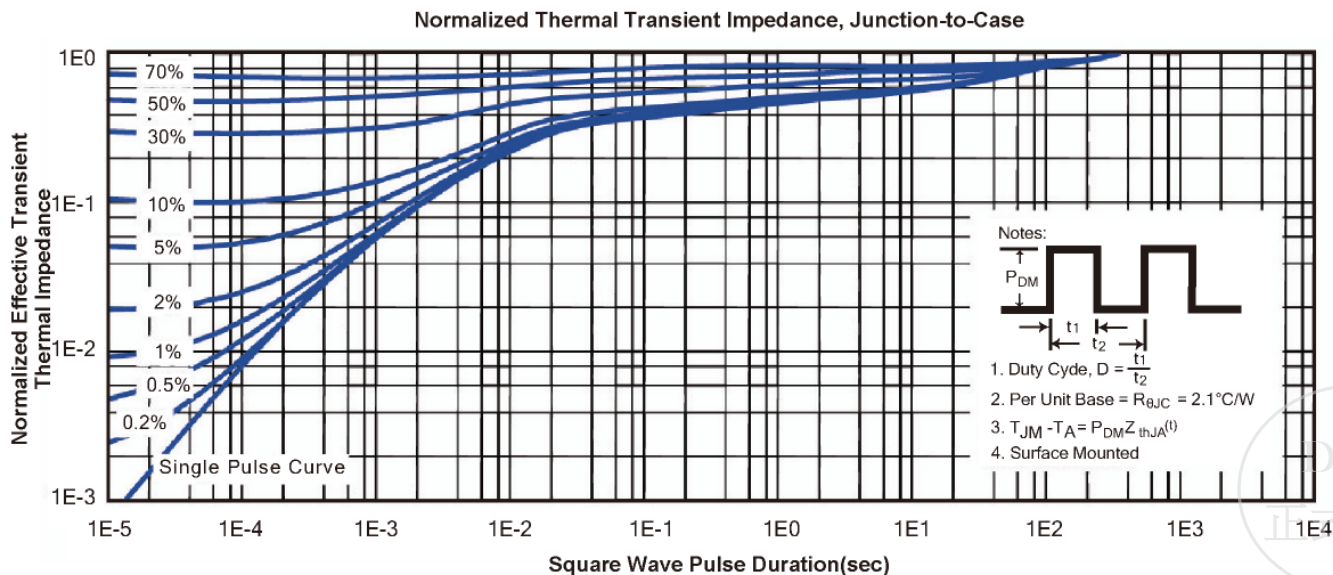
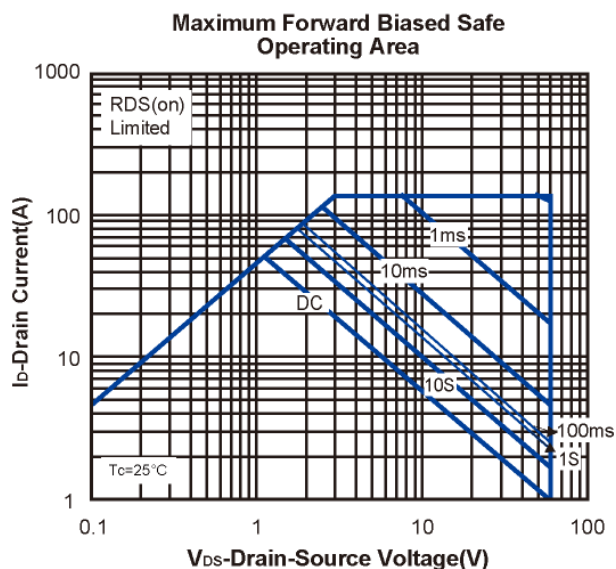
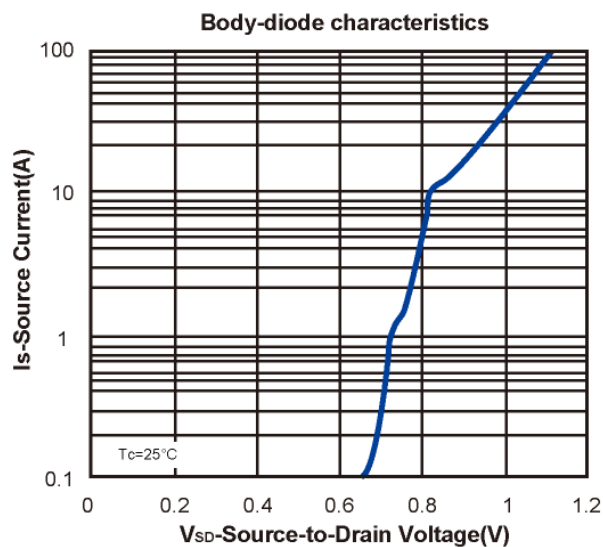
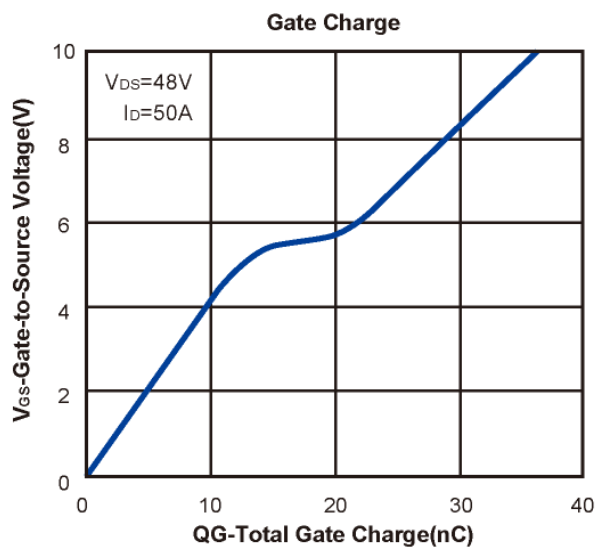
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Typical Characteristics (T_J =25°C Noted)

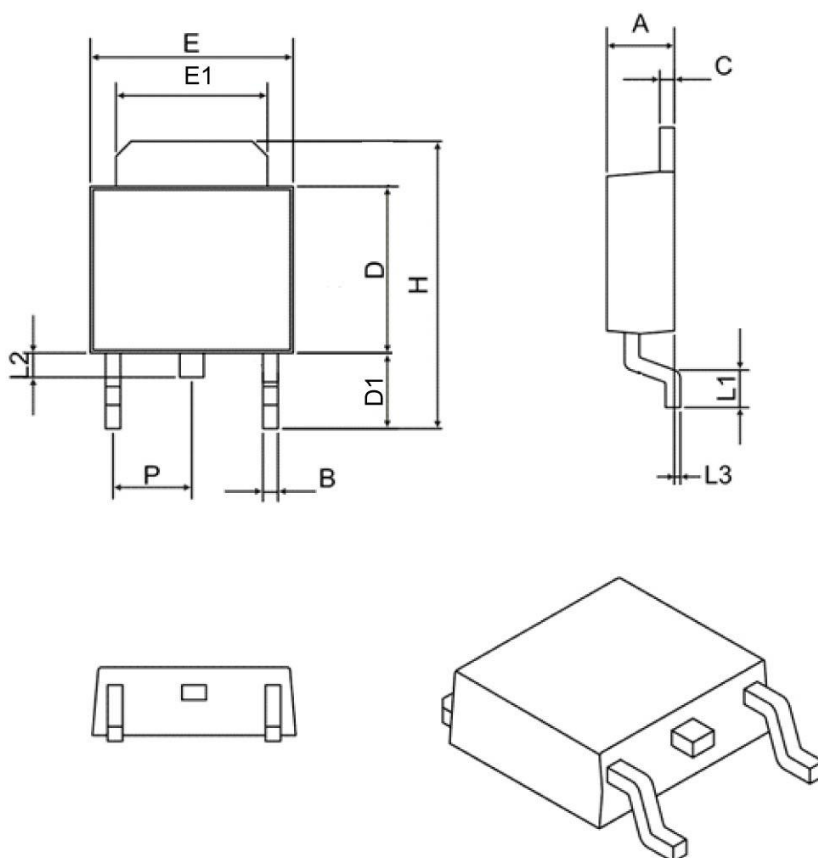


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TO-252-3L Package Outline



SYMBOL	MIN	MAX
A	2.10	2.50
B	0.40	0.90
C	0.40	0.90
D	5.30	6.30
D1	2.20	2.90
E	6.30	6.75
E1	4.80	5.50
L1	0.90	1.80
L2	0.50	1.10
L3	0.00	0.20
H	8.90	10.40
P	2.30 BSC	

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