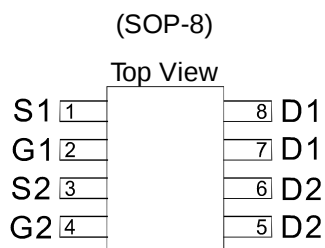


Dual N-Channel 30-V (D-S) MOSFET

GENERAL DESCRIPTION

The ME4970 is the Dual 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.

PIN CONFIGURATION

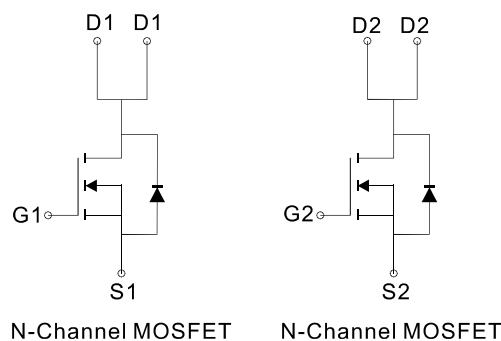


FEATURES

- $R_{DS(ON)} \leq 16m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 20m\Omega @ V_{GS}=4.5V$
- 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
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter



Ordering Information: ME4970 (Pb-free)

ME4970-G(Green product-Halogen -free) product)

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ 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℃	I _D	10		A
	T _A =70℃		8.3		
Pulsed Drain Current		I _{DM}	38		A
Maximum Power Dissipation	T _A =25℃	P _D	2		W
	T _A =70℃		1.2		
Operating Junction Temperature		T _J	-55 to 150		℃
Parameter		Symbol	Limit		Unit
			Typ	Max	
Thermal Resistance-Junction to Ambient*	t ≤ 10 sec	R _{θJA}	52	62.5	℃/W
	Steady-State		93	110	
Thermal Resistance-Junction to Foot (Drain)	Steady-State	R _{θJF}	35	40	

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

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

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

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250 μ A	30			V
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250 μ A	1		3	V
IGSS	Gate Leakage Current	VDS=0V, VGS=±20V			±100	nA
IDSS	Zero Gate Voltage Drain Current	VDS=24V, VGS=0V			1	μ A
RDS(ON)	Drain-Source On-Resistance ^a	VGS=10V, ID= 10A		13.2	16	m Ω
		VGS=4.5V, ID= 8A		16.8	20	
VSD	Diode Forward Voltage	IS=8.2A, VGS=0V		0.8	1.2	V
DYNAMIC						
Rg	Gate Resistance	f=1MHz		1		Ω
Qg	Total Gate Charge	VDS=10V, VGS=4.5V, ID=8.2A		9.5		nC
Qgs	Post-Vth Gate-Source Charge			3.6		
Qgd	Gate-Drain Charge			3.4		
Ciss	Input Capacitance	VDS=25V, VGS=0V, f=1MHz		841		pF
Coss	Output Capacitance			250		
Crss	Reverse Transfer Capacitance			71		
td(on)	Turn-On Delay Time	VDD=15V, RL =15 Ω ID=1A, VGEN=10V, RG=6 Ω		14		ns
tr	Turn-On Rise Time			12		
td(off)	Turn-Off Delay Time			43		
tf	Turn-Off Fall Time			4		

Notes: a. pulse test: pulse width $\leq$ 300 μ s, duty cycle $\leq$ 2%, Guaranteed by design, not subject to production testing.

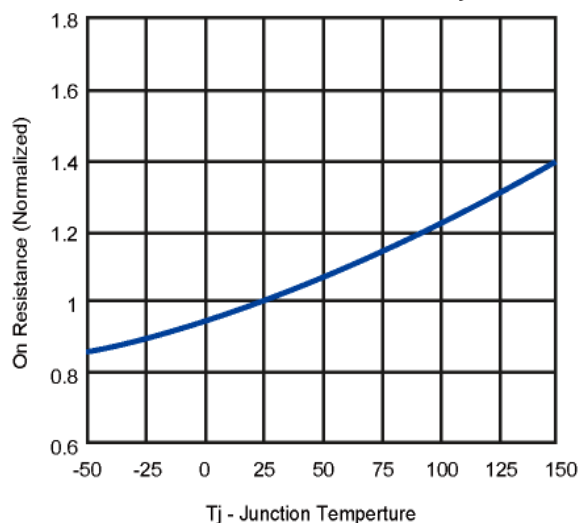
b. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice

DCC
正式發行

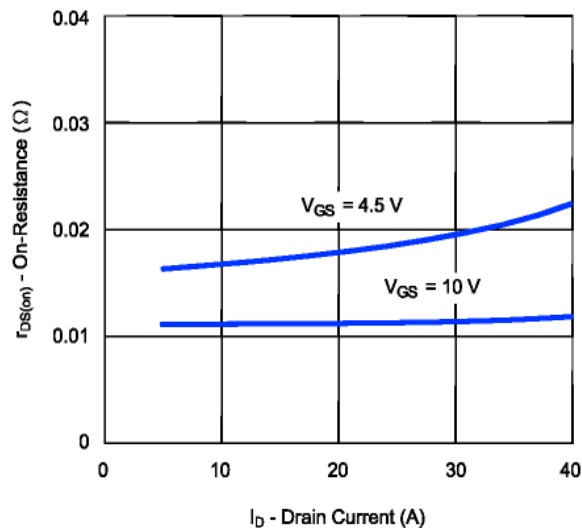
Dual N-Channel 30-V (D-S) MOSFET

Typical Characteristics (T_J = 25°C Noted)

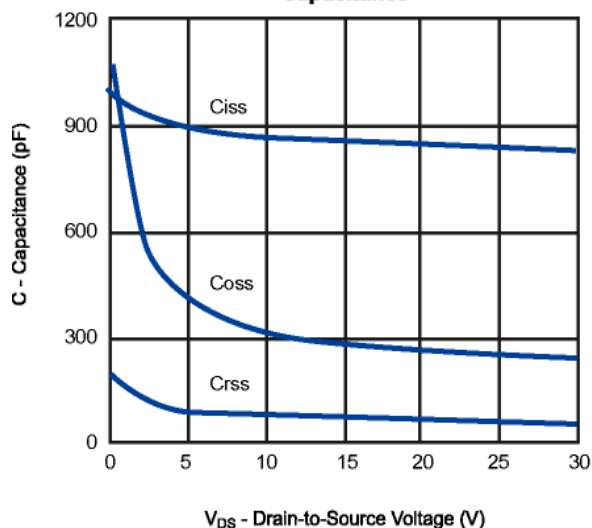
On Resistance vs. Junction Temperature



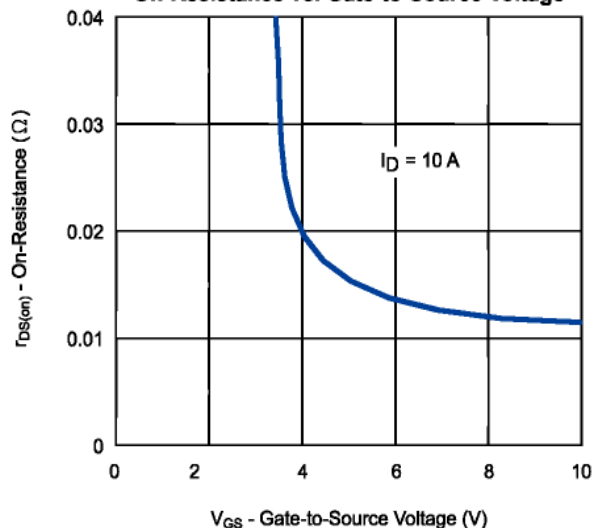
On-Resistance vs. Drain Current



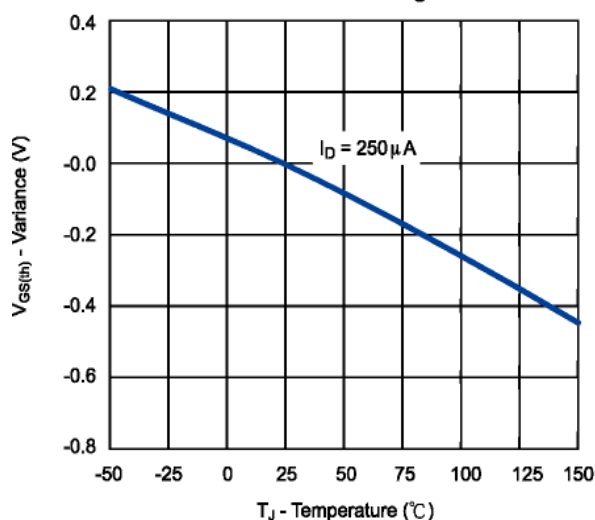
Capacitance



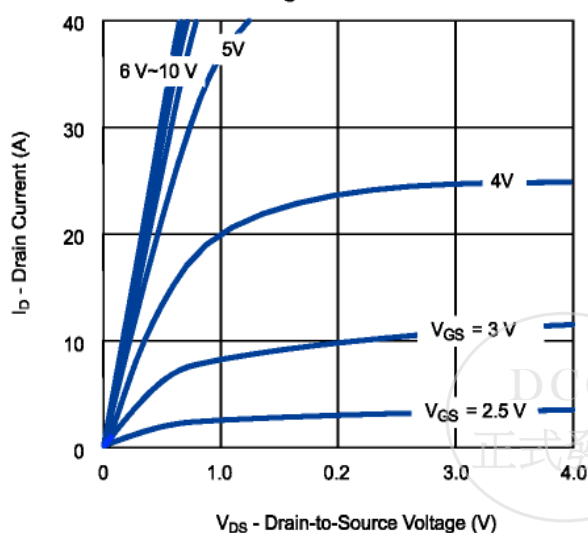
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

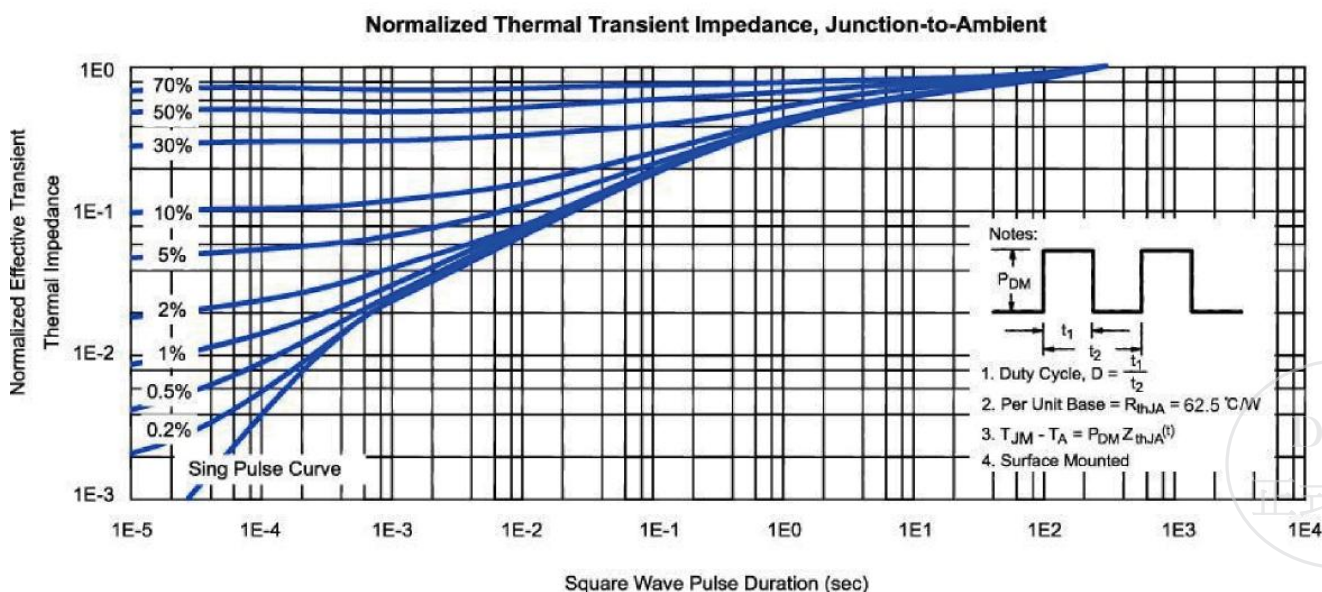
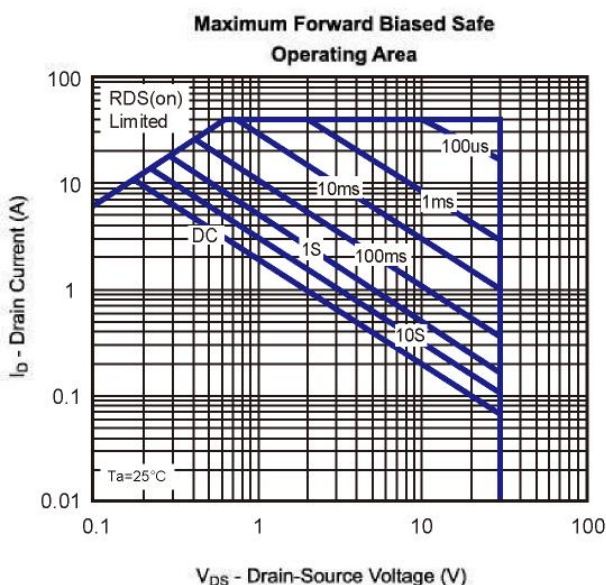
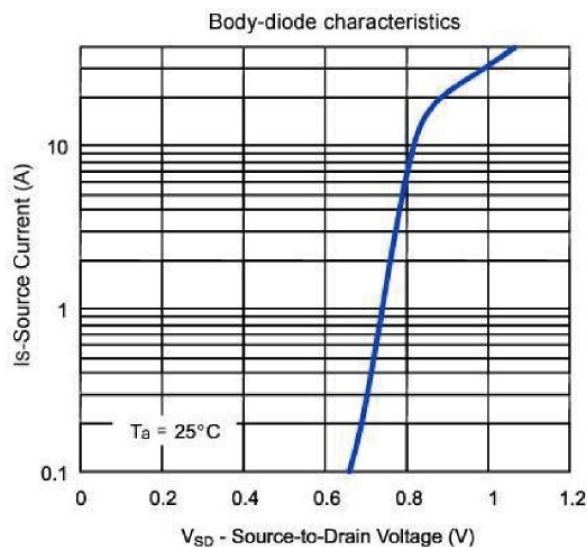
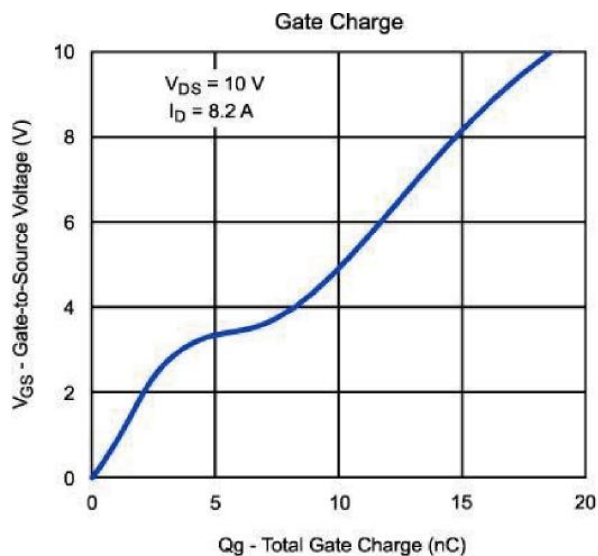


On-Region Characteristics

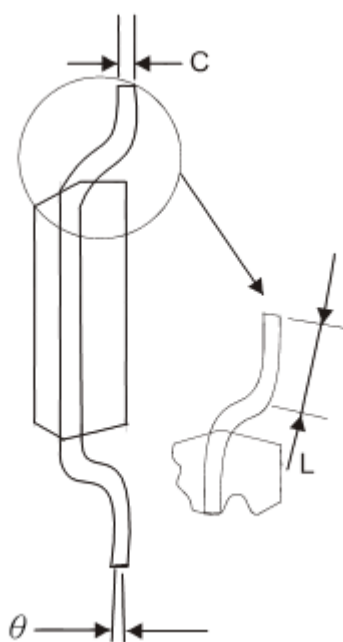
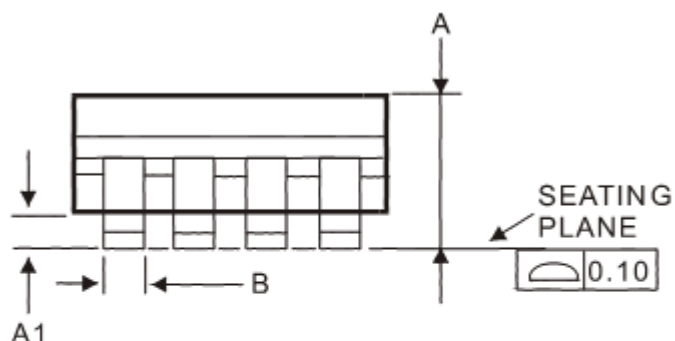
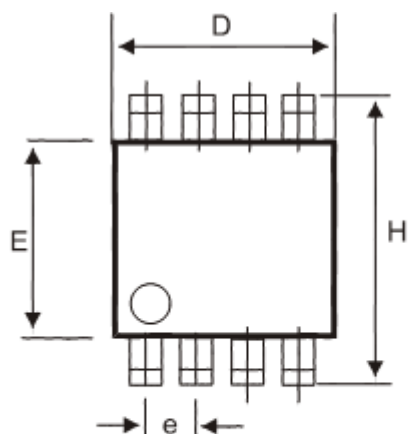


Dual N-Channel 30-V (D-S) MOSFET

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



SOP-8 Package Outline



Symbol	MILLIMETERS (mm)	
	MIN	MAX
A	1.35	1.75
A1	0.10	0.25
B	0.35	0.49
C	0.18	0.25
D	4.80	5.00
E	3.80	4.00
e	1.27 BSC	
H	5.80	6.20
L	0.40	1.25
θ	0°	7°

DCC
正式發行