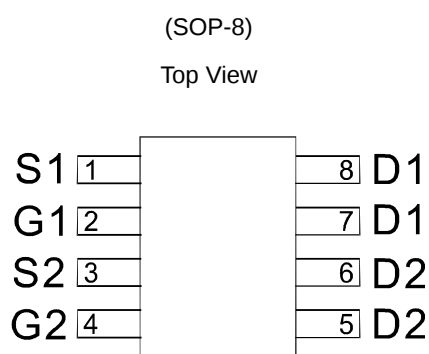


Dual N-Channel 150-V (D-S) MOSFET

GENERAL DESCRIPTION

The ME4972-G is the N-Channel logic enhancement mode power field effect transistors, 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, notebook computer power management and other battery powered circuits, and low in-line power loss that are needed in a very small outline surface mount package.

PIN CONFIGURATION

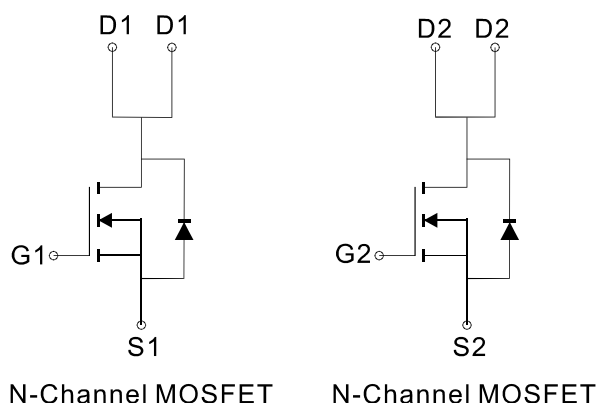


FEATURES

- $R_{DS(ON)} \leq 376m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 360m\Omega @ V_{GS}=4.5V$
- 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
- DC/DC Converter
- Load Switch
- LCD Display inverter



! **Ordering Information:** ME4972-G (Green product-Halogen free)

Absolute Maximum Ratings (TA=25°C Unless Otherwise Noted)

Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_A=25^\circ C$	I_D	1.9	A
	$T_A=70^\circ C$		1.5	
Pulsed Drain Current		I_{DM}	7	A
Maximum Power Dissipation	$T_A=25^\circ C$	P_D	2	W
	$T_A=70^\circ C$		1.3	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ C$
Thermal Resistance-Junction to Case *		$R_{\theta JA}$	62.5	$^\circ C/W$

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

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Dual N-Channel 150-V (D-S) MOSFET

Electrical Characteristics (T_A=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	150			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} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =120V, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-Resistance ^a	V _{GS} =10V, I _D = 7A		313	376	mΩ
		V _{GS} =4.5V, I _D = 6A		300	360	
V _{SD}	Diode Forward Voltage	I _S =1.8A, V _{GS} =0V			1.3	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =75V, V _{GS} =10V, I _D =7A		16.1		nC
Q _{gs}	Gate-Source Charge			5.2		
Q _{gd}	Gate-Drain Charge			4.2		
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz		657		pF
C _{oss}	Output Capacitance			34		
C _{rss}	Reverse Transfer Capacitance			7		
t _{d(on)}	Turn-On Delay Time	V _{DS} =75V, R _L =10.68Ω, V _{GS} =10V, R _G =6Ω I _D =7A		9.8		ns
t _r	Turn-On Rise Time			11.1		
t _{d(off)}	Turn-Off Delay Time			29.3		
t _f	Turn-Off Fall Time			24.4		

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

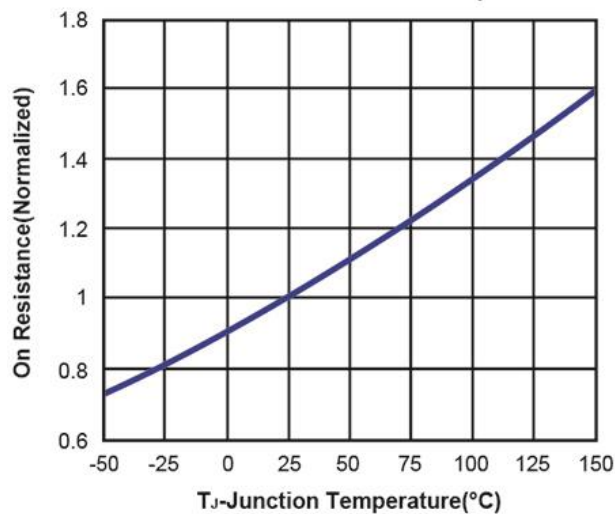
b. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.



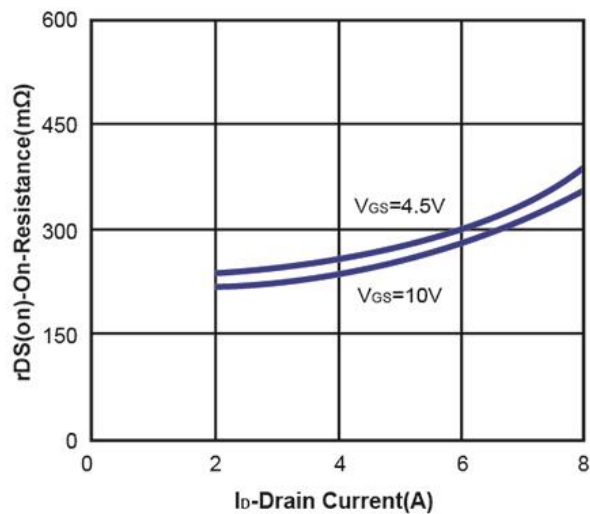
Dual N-Channel 150-V (D-S) MOSFET

Typical Characteristics (T_J =25°C Noted)

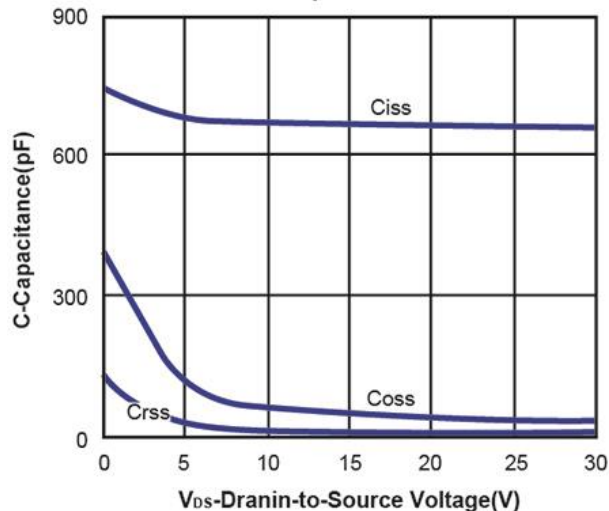
On Resistance vs. Junction Temperature



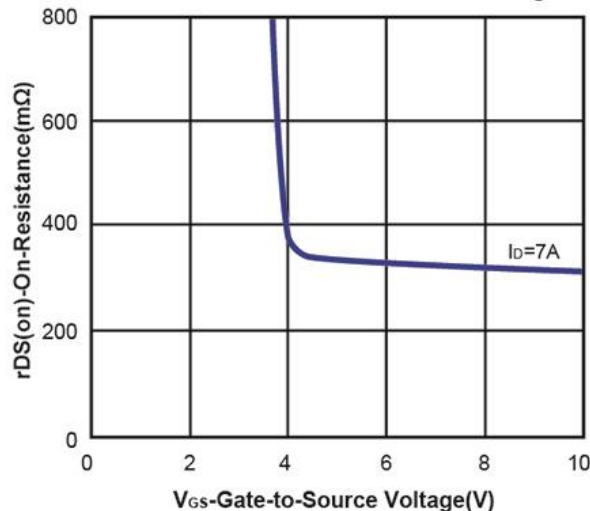
On Resistance vs. Drain Current



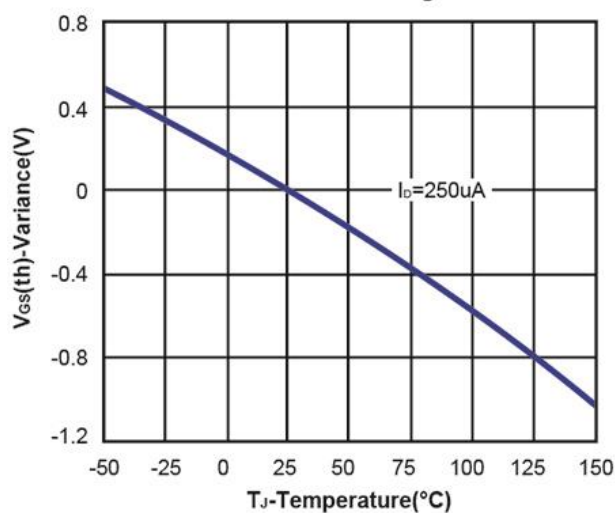
Capacitance



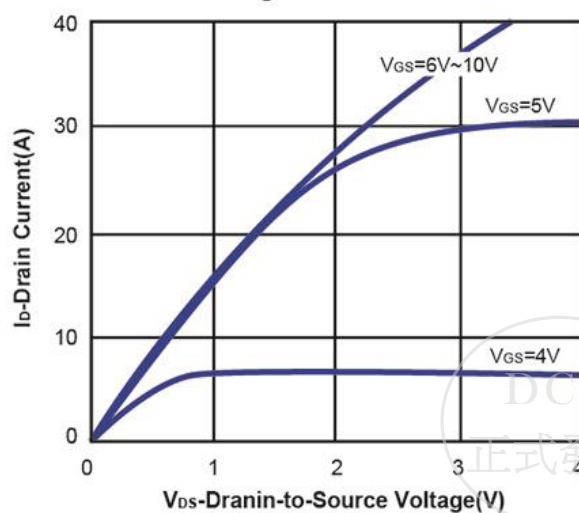
On Resistance vs. Gate-to-Source Voltage



Threshold Voltage

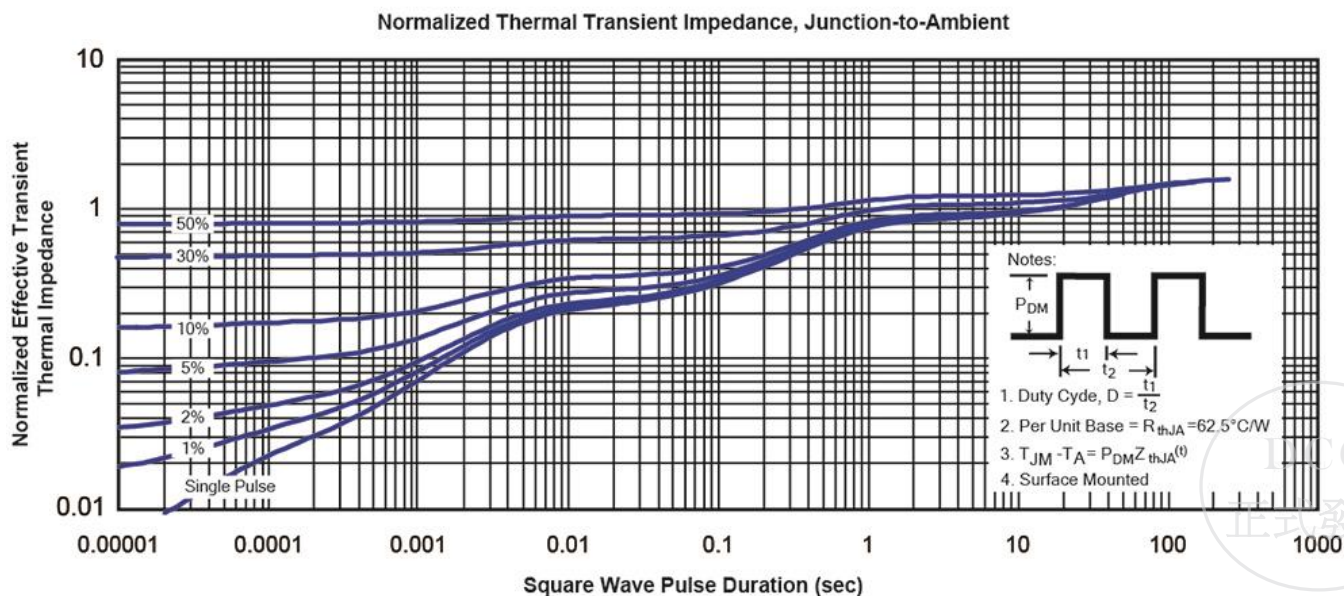
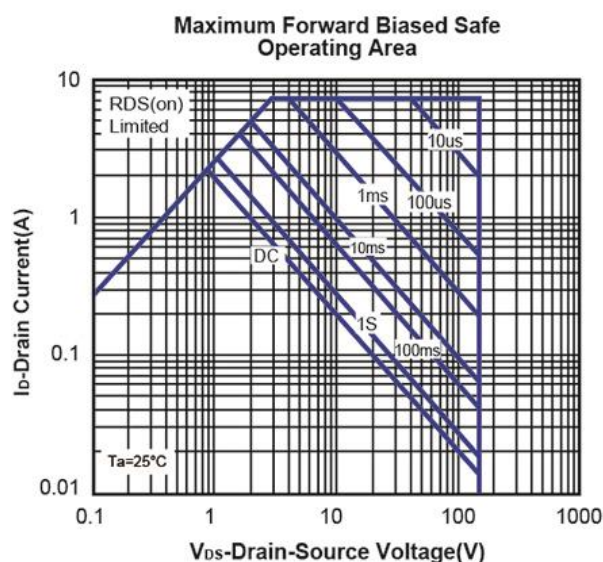
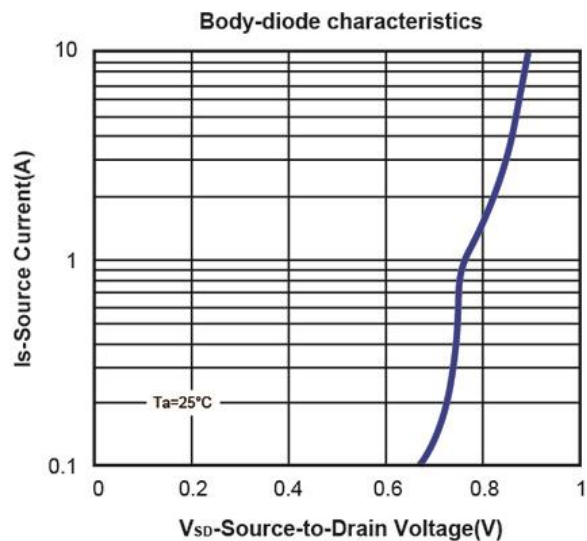
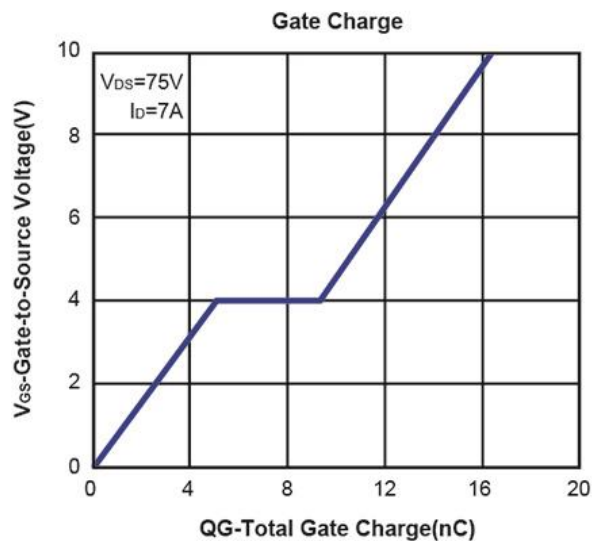


On-Region Characteristics

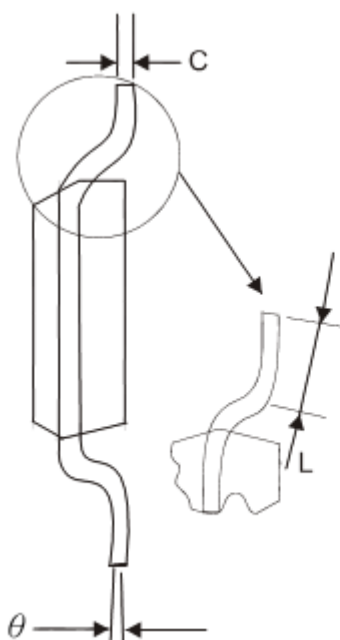
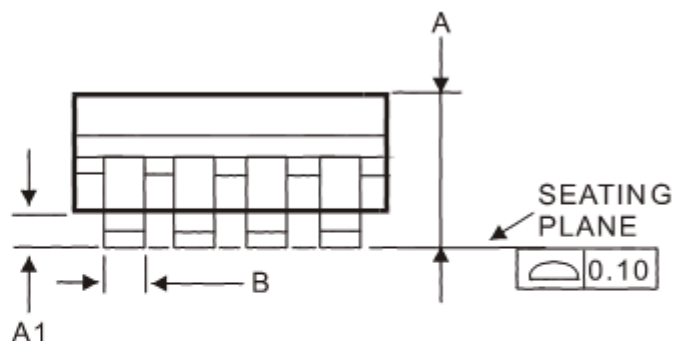
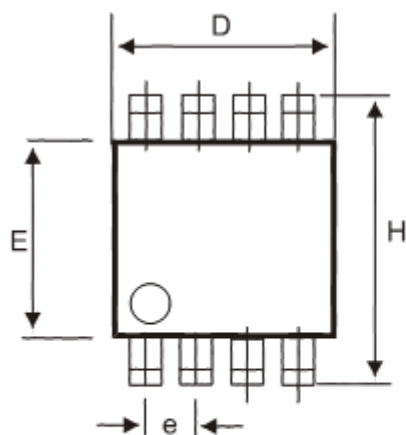


Dual N-Channel 150-V (D-S) MOSFET

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



SOP-8 Package Outline



DIM	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°

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