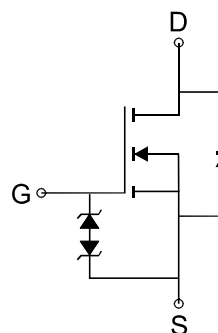
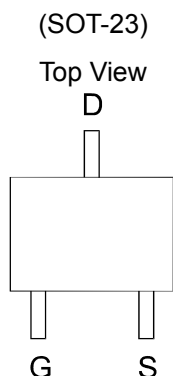


N-Channel 30V (D-S) MOSFET , ESD Protected

GENERAL DESCRIPTION

The ME2306D 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 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

- $R_{DS(ON)} \leq 31m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 52m\Omega @ V_{GS}=4.5V$
- ESD Protected
- 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
- Load Switch

Ordering Information: ME2306D(Pb-free)

ME2306D-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_{GSS}	±20	V
Continuous Drain*	I_D	$T_A=25^\circ C$	5.3
		$T_A=70^\circ C$	4.2
Pulsed Drain Current	I_{DM}	21.2	A
Maximum Power Dissipation*	P_D	$T_A=25^\circ C$	1.39
		$T_A=70^\circ C$	0.89
Operating Junction Temperature	T_J	-55 to 150	°C
Storage Temperature Range	T_{stg}	-55 to 150	°C
Thermal Resistance-Junction to Ambient*	$R_{\theta JA}$	90	°C/W

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



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

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

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	1	1.5	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-Resistance ^a	V _{GS} =10V, I _D = 6.7A		26	31	mΩ
		V _{GS} =4.5V, I _D = 5.0A		40	52	
V _{SD}	Diode Forward Voltage	I _S =1.7A, V _{GS} =0V		0.8	1.2	V
DYNAMIC						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHZ		370		pF
C _{oss}	Output Capacitance			68		
C _{rss}	Reverse Transfer Capacitance			21		
R _g	Gate Resistance	f=1MHz		1.9		Ω
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =6.7A		12		nC
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _D =6.7A		5.7		
Q _{gs}	Gate-Source Charge			3.0		
Q _{gd}	Gate-Drain Charge			2.1		
t _{d(on)}	Turn-On Delay Time	V _{DD} =15V, R _L =15Ω I _D =1.0A, V _{GEN} =10V R _G =6Ω		9.2		ns
t _r	Turn-On Rise Time			13		
t _{d(off)}	Turn-Off Delay Time			33		
t _f	Turn-Off Fall Time			3.7		

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

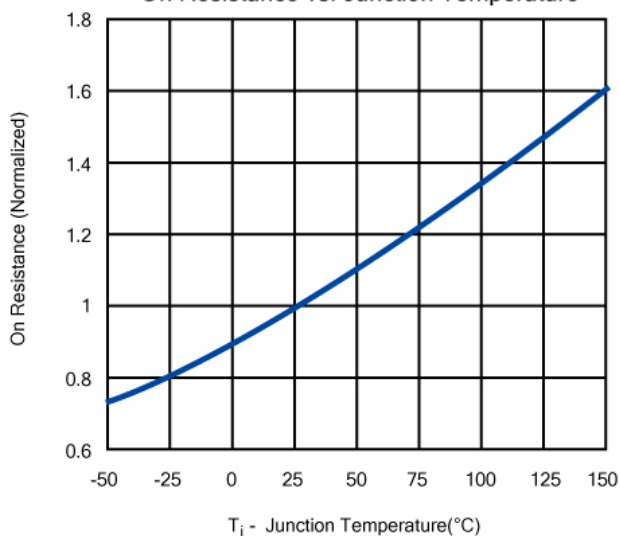
b. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.



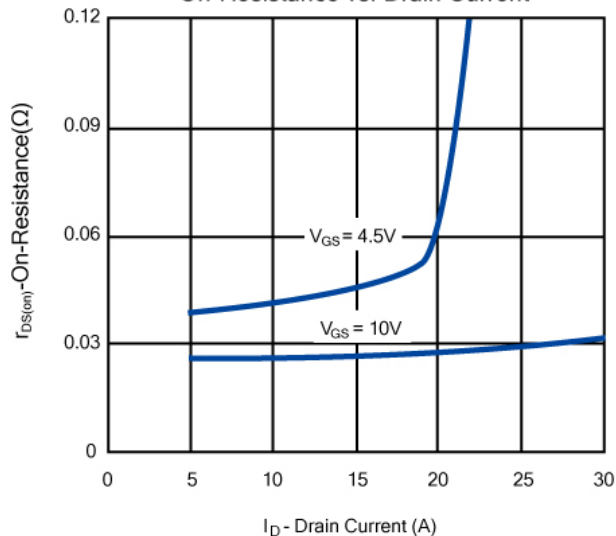
N-Channel 30V (D-S) MOSFET , ESD Protected

Typical Characteristics (T_J = 25°C Noted)

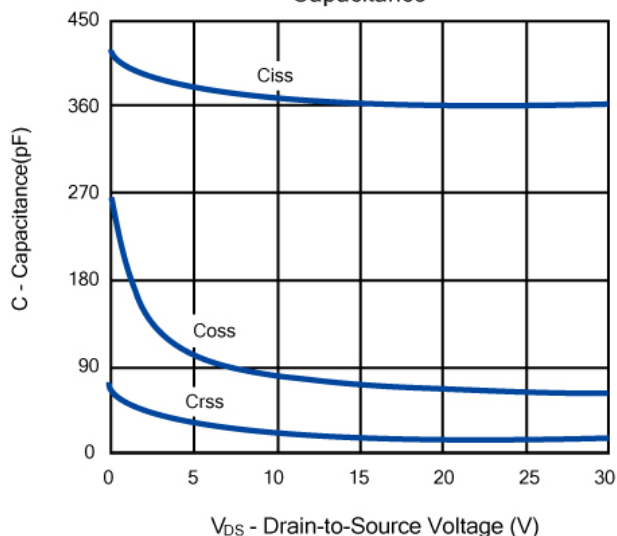
On Resistance vs. Junction Temperature



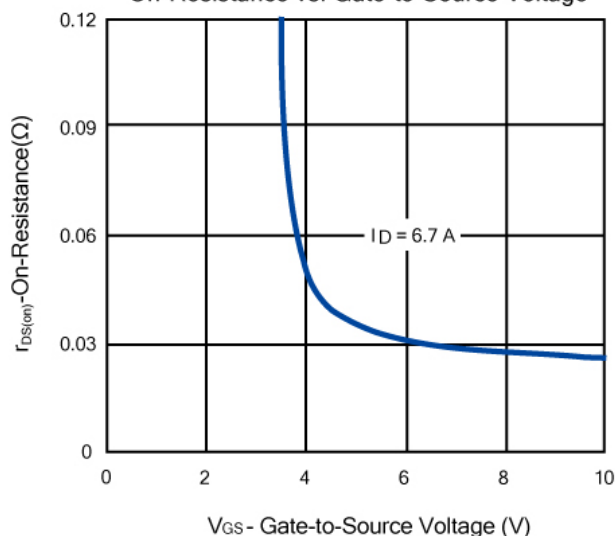
On-Resistance vs. Drain Current



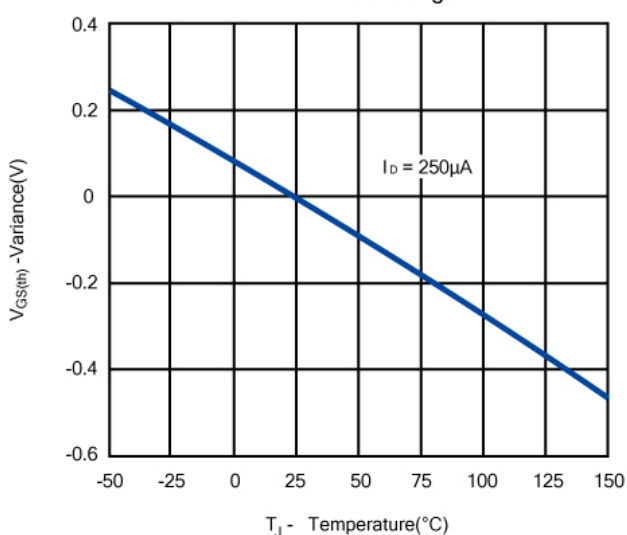
Capacitance



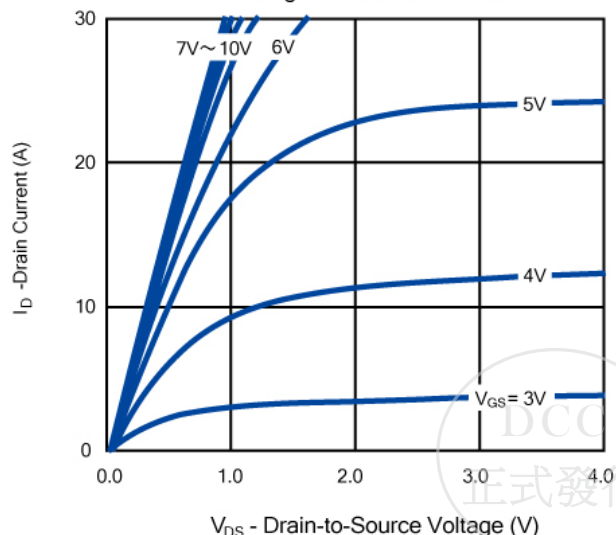
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

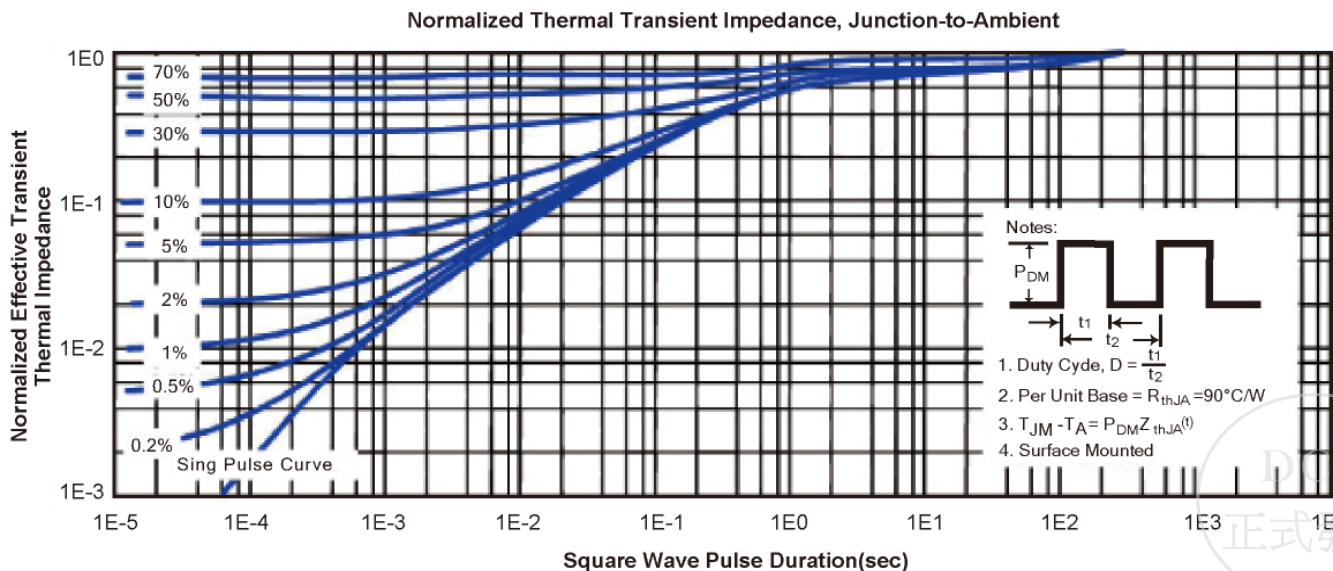
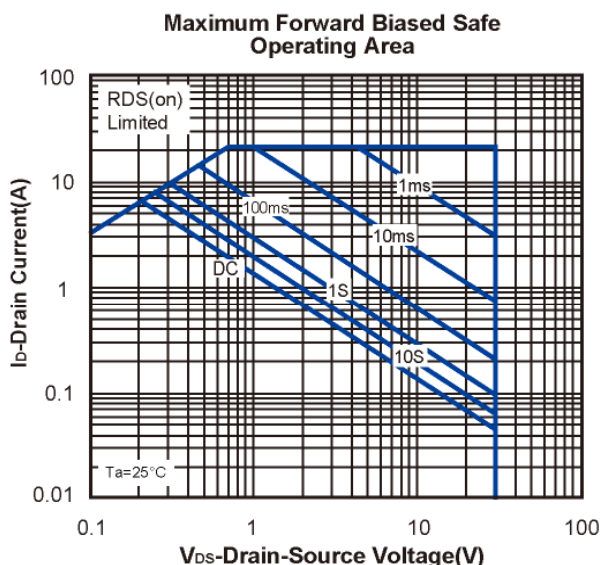
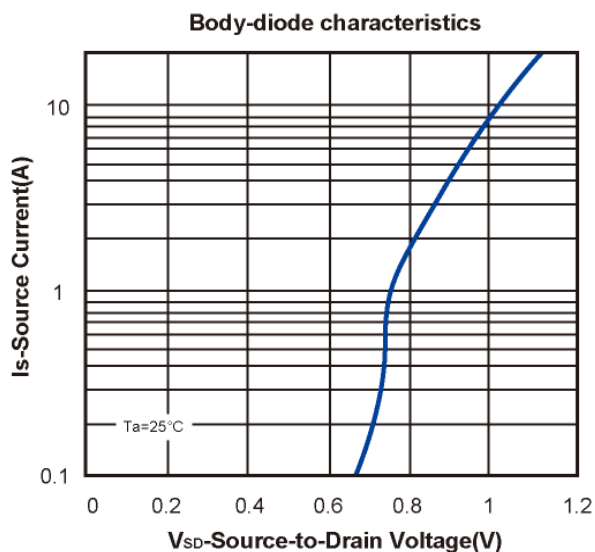
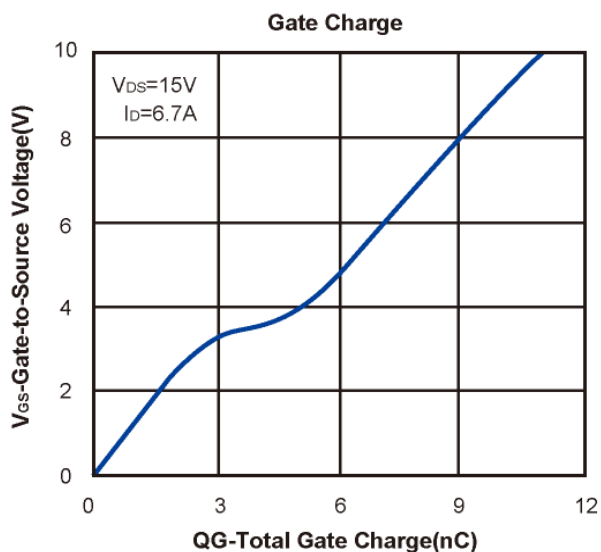


On-Region Characteristics

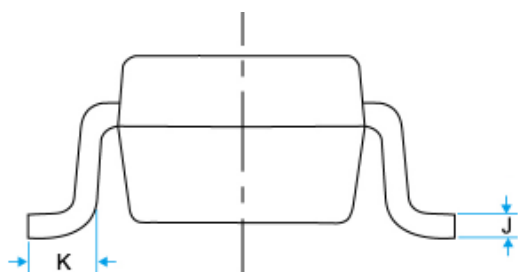
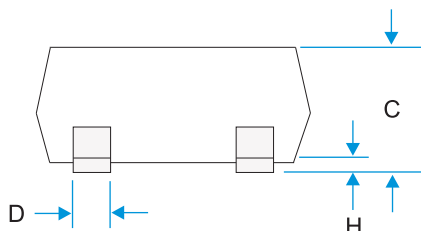
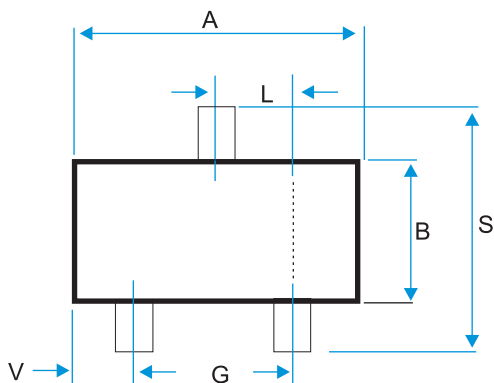


N-Channel 30V (D-S) MOSFET , ESD Protected

Typical Characteristics (T_J =25°C Noted)



SOT-23 Package Outline



DIM	MILLIMETERS (mm)	
	MIN	MAX
A	2.800	3.00
B	1.200	1.70
C	0.900	1.30
D	0.350	0.50
G	1.780	2.04
H	0.010	0.15
J	0.085	0.20
K	0.300	0.65
L	0.890	1.02
S	2.100	3.00
V	0.450	0.60

