

N-Channel 250-V (D-S) MOSFET

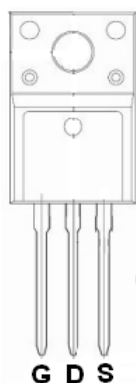
GENERAL DESCRIPTION

The ME15N25F 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.

PIN CONFIGURATION

(TO-220F)

Top View

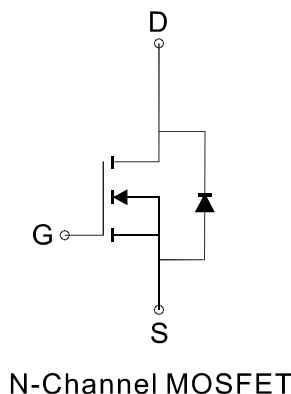


FEATURES

- $R_{DS(ON)} \leq 220m\Omega @ V_{GS}=10V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- Power Management in Note book
- DC/DC Converter
- Load Switch
- LCD Display inverter



Ordering Information: ME15N25F (Pb-free)

ME15N25F-G (Green product-Halogen free)

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

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	250	V
Gate-Source Voltage	V_{GS}	± 25	V
Continuous Drain Current	I_D	Tc=25°C	12.5
		Tc=70°C	10.4
Pulsed Drain Current	I_{DM}	50	A
Maximum Power Dissipation	P_D	Tc=25°C	61.9
		Tc=70°C	43.3
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 175	°C
Thermal Resistance-Junction to Case *	$R_{\theta JC}$	2.42	°C/W

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

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

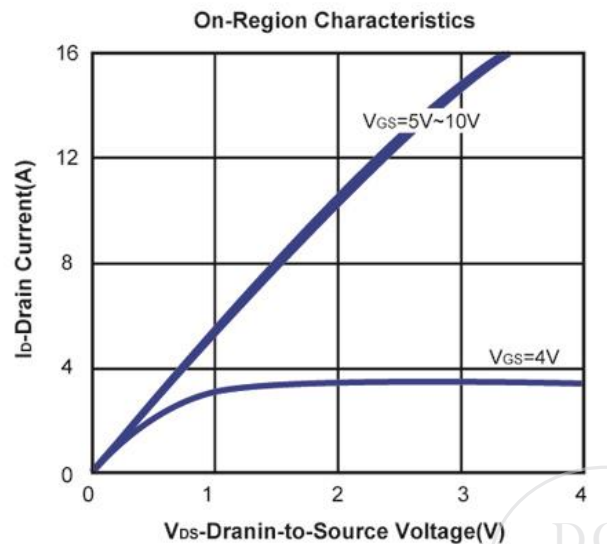
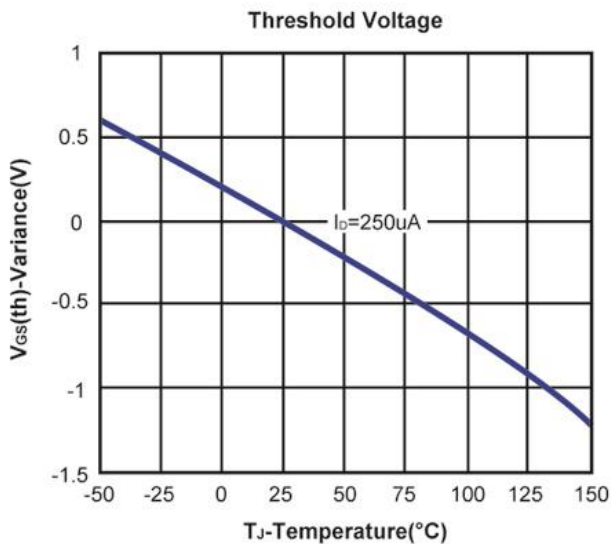
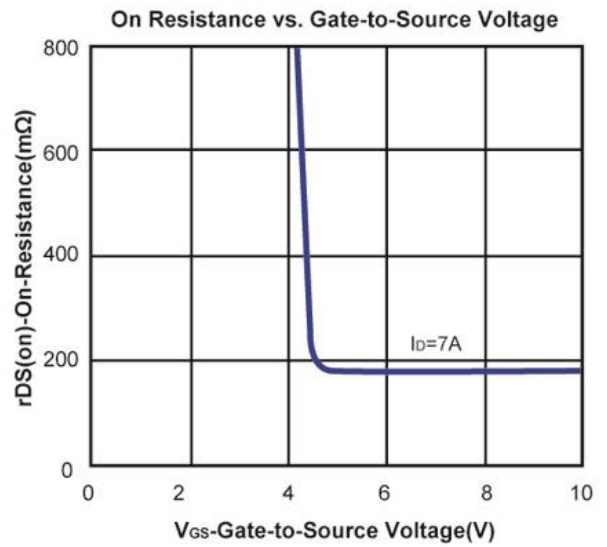
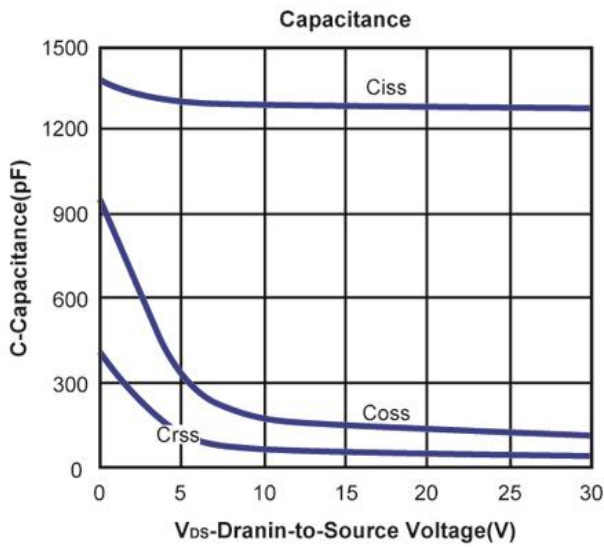
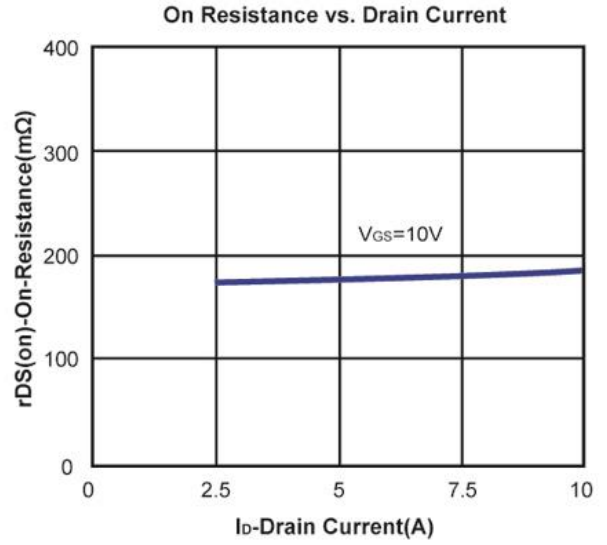
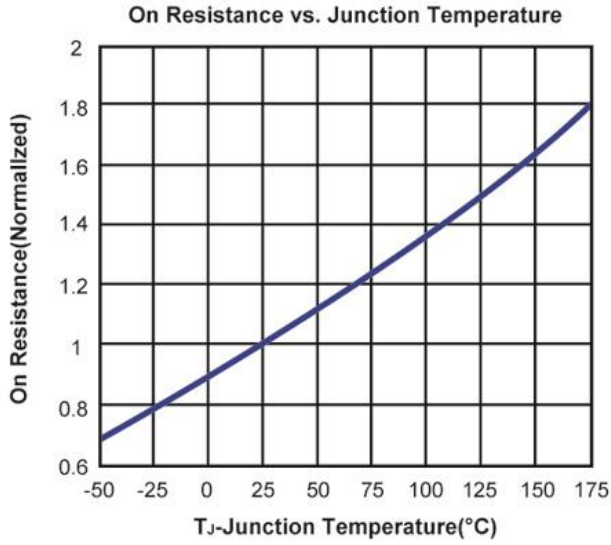
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	250			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	2		4	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±25V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =200V, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-Resistance ^a	V _{GS} =10V, I _D = 7A		180	220	mΩ
V _{SD}	Diode Forward Voltage	I _S =1A, V _{GS} =0V		0.74	1	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =200V, V _{GS} =10V, I _D =14A		70		nC
Q _{gs}	Gate-Source Charge			16.3		
Q _{gd}	Gate-Drain Charge			24.6		
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz		1277		pF
C _{oss}	Output Capacitance			118		
C _{rss}	Reverse Transfer Capacitance			39		
t _{d(on)}	Turn-On Delay Time	V _{DS} =125V, R _L =18Ω, V _{GEN} =10V, R _G =25Ω		44.4		ns
t _r	Turn-On Rise Time			43.4		
t _{d(off)}	Turn-Off Delay Time			199		
t _f	Turn-Off Fall Time			75.9		

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.

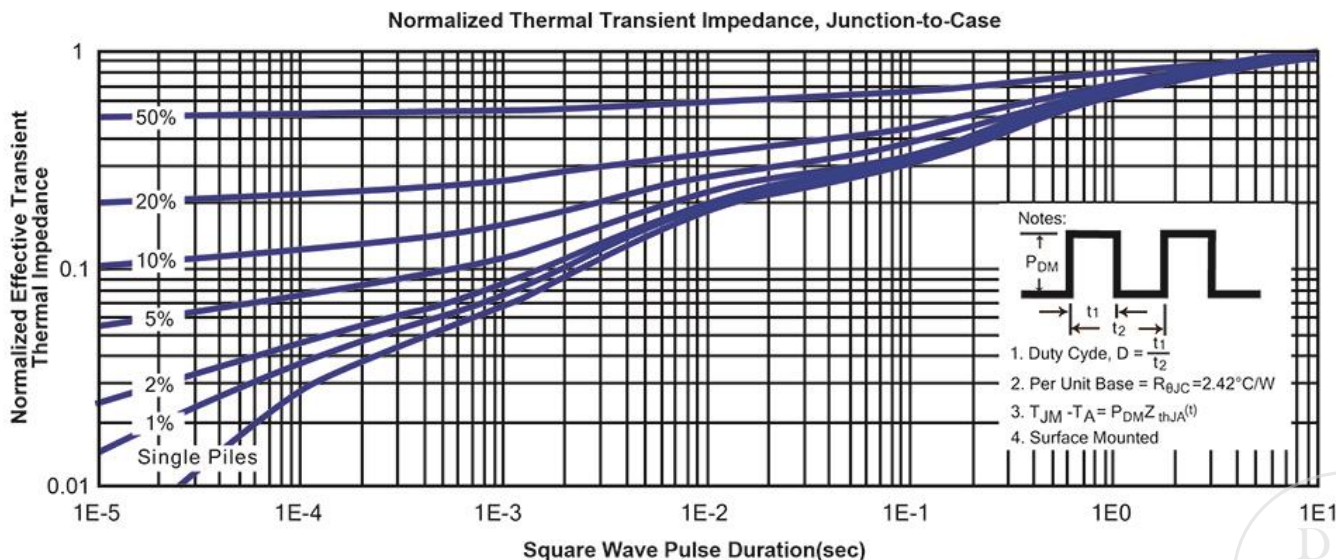
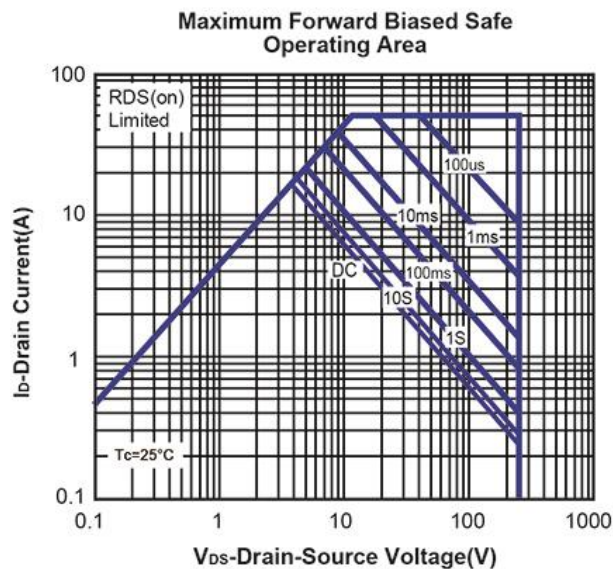
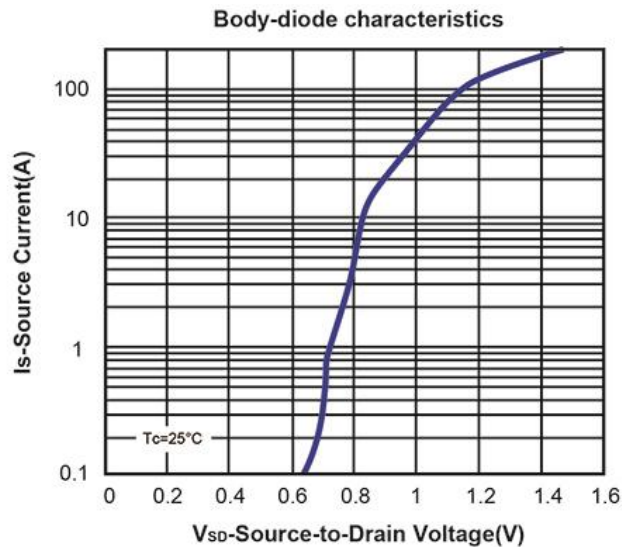
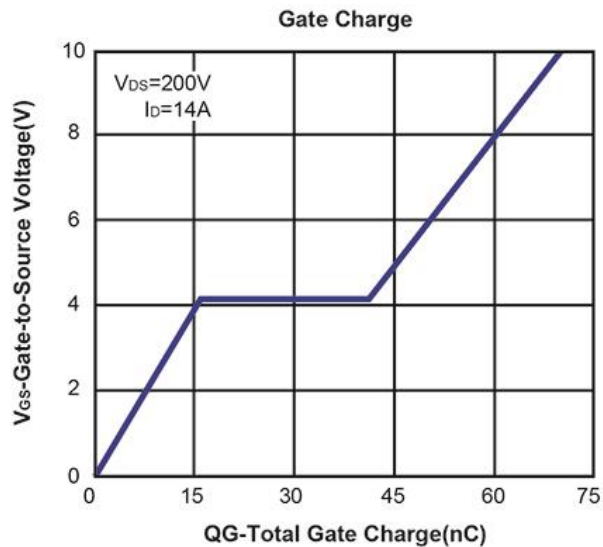
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Typical Characteristics (T_J =25°C Noted)

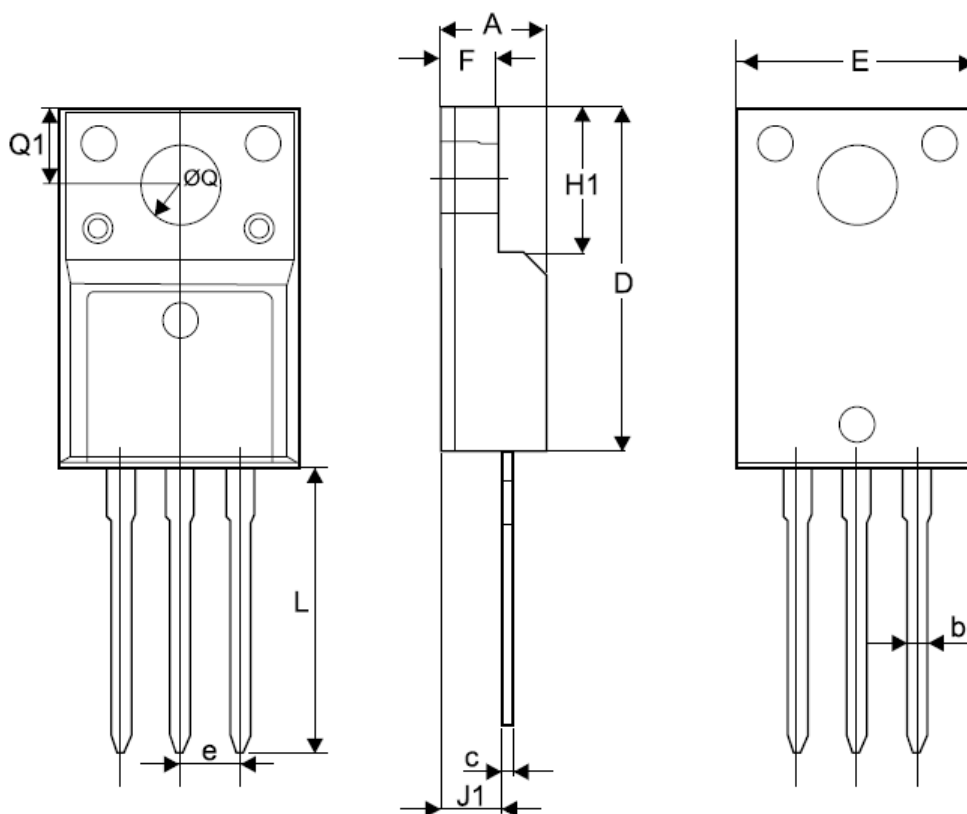


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TO-220F Package Outline



Symbol	MILLIMETERS(mm)	
	MIN	MAX
A	4.40	5.00
b	0.60	1.00
C	0.30	0.70
D	15.40	16.40
E	6.96	10.46
F	2.30	2.80
e	2.54 TYP	
H1	6.40	7.00
J1	2.45	3.05
L	12.28	13.68
ØQ	2.92	3.38
Q1	3.05	3.55