

N- Channel 150V (D-S) MOSFET

GENERAL DESCRIPTION

The ME25N15AL 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.

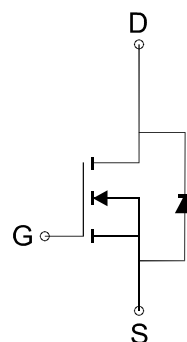
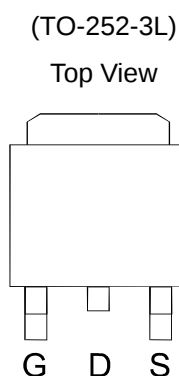
FEATURES

- $R_{DS(ON)} \leq 78m\Omega @ V_{GS}=10V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- DC/DC Converter
- Load Switch
- LCD/ LED Display inverter

PIN CONFIGURATION



N-Channel MOSFET

Ordering Information: ME25N15AL(Pb-free)

ME25N15AL-G (Green product-Halogen free)

Absolute Maximum Ratings (Tc=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*, $V_{GS}=10V$	$T_C=25^\circ C$	I_D	22.3	A
	$T_C=70^\circ C$		17.8	
	$T_C=100^\circ C$		14.1	
Pulsed Drain Current		I_{DM}	89	A
Maximum Power Dissipation*	$T_C=25^\circ C$	P_D	89.2	W
	$T_C=70^\circ C$		57.1	
	$T_C=100^\circ C$		35.7	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	°C
Thermal Resistance-Junction to Case*		$R_{\theta JC}$	1.4	°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						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	150			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μ A	1		3	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} = $\pm$ 20V			$\pm$ 100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =120V, V _{GS} =0V			1	μ A
R _{DS(ON)}	Drain-Source On-State Resistance ^a	V _{GS} =10V, I _D = 10A		65	78	m Ω
V _{SD}	Diode Forward Voltage	I _S =5A, V _{GS} =0V			1.3	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =75V, V _{GS} =10V, I _D =5A		51.2		nC
Q _g	Total Gate Charge	V _{DS} =75V, V _{GS} =5V, I _D =5A		24.3		
Q _{gs}	Gate-Source Charge			10.3		
Q _{gd}	Gate-Drain Charge			8.5		
C _{iss}	Input capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz		1229		pF
C _{oss}	Output Capacitance			139		
C _{rss}	Reverse Transfer Capacitance			16		
t _{d(on)}	Turn-On Delay Time	V _{DD} =75V, R _L =15 Ω V _{GS} =10V, R _{GEN} =6 Ω I _D =5A		20.5		ns
t _r	Turn-On Rise Time			15.8		
t _{d(off)}	Turn-Off Delay Time			77.8		
t _f	Turn-Off Fall Time			71.4		

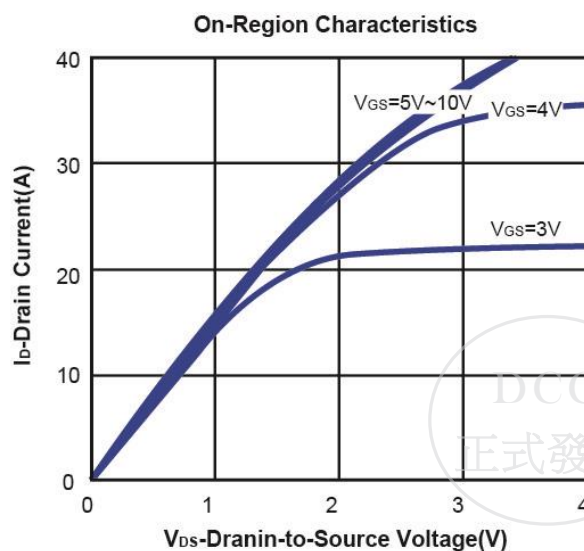
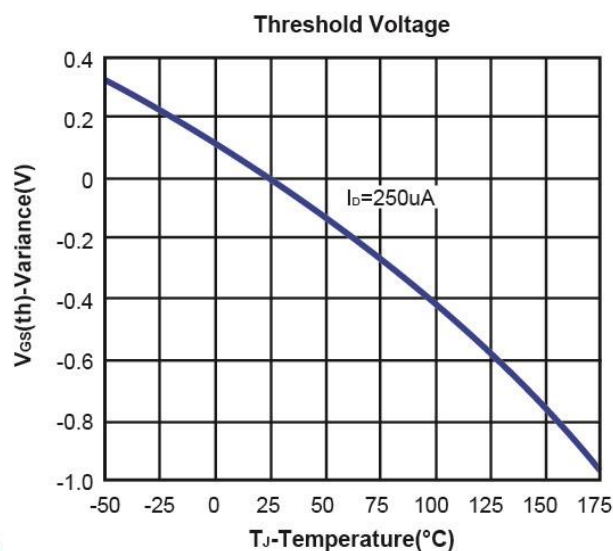
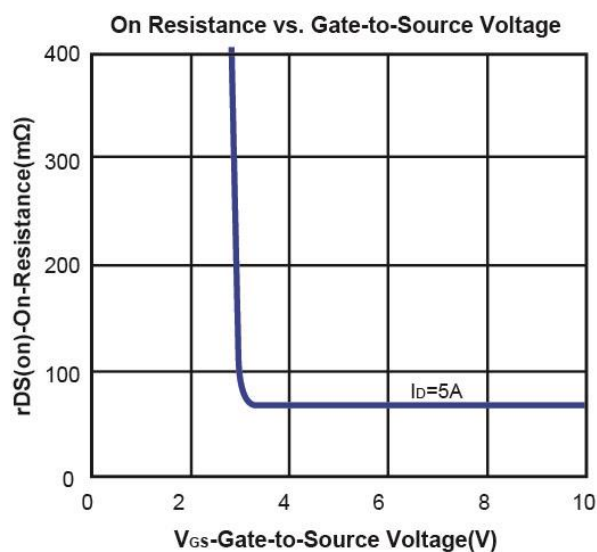
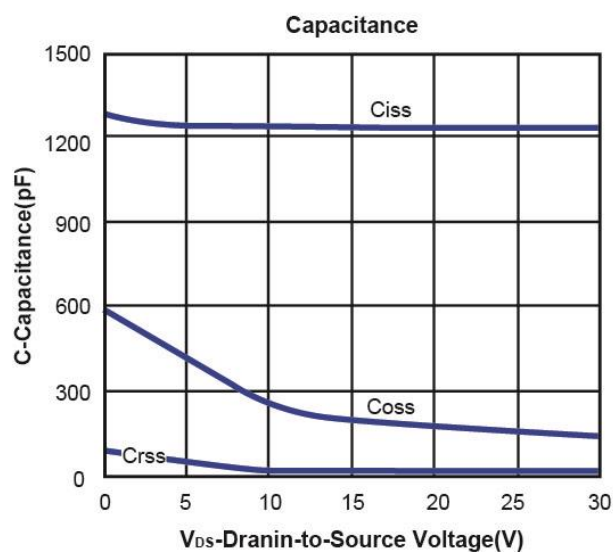
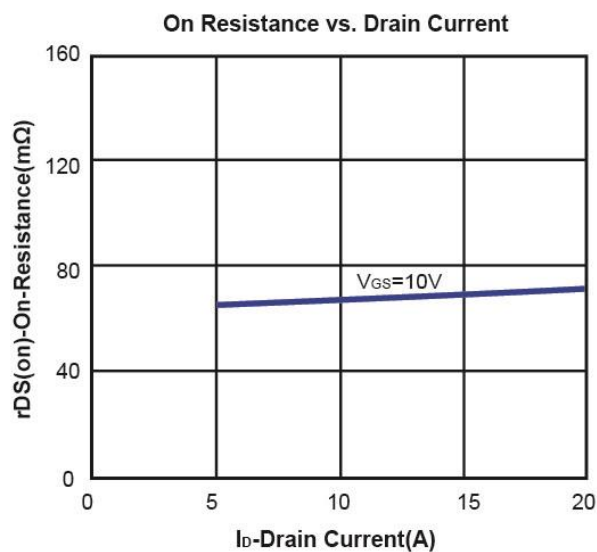
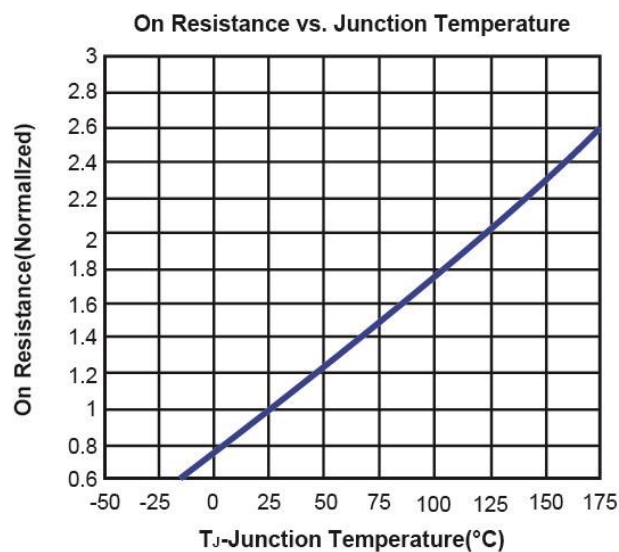
Notes: a. Pulse test: pulse width $\leq$ 300 μ s, duty cycle $\leq$ 2%, Guaranteed by design, not subject to production testing.

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



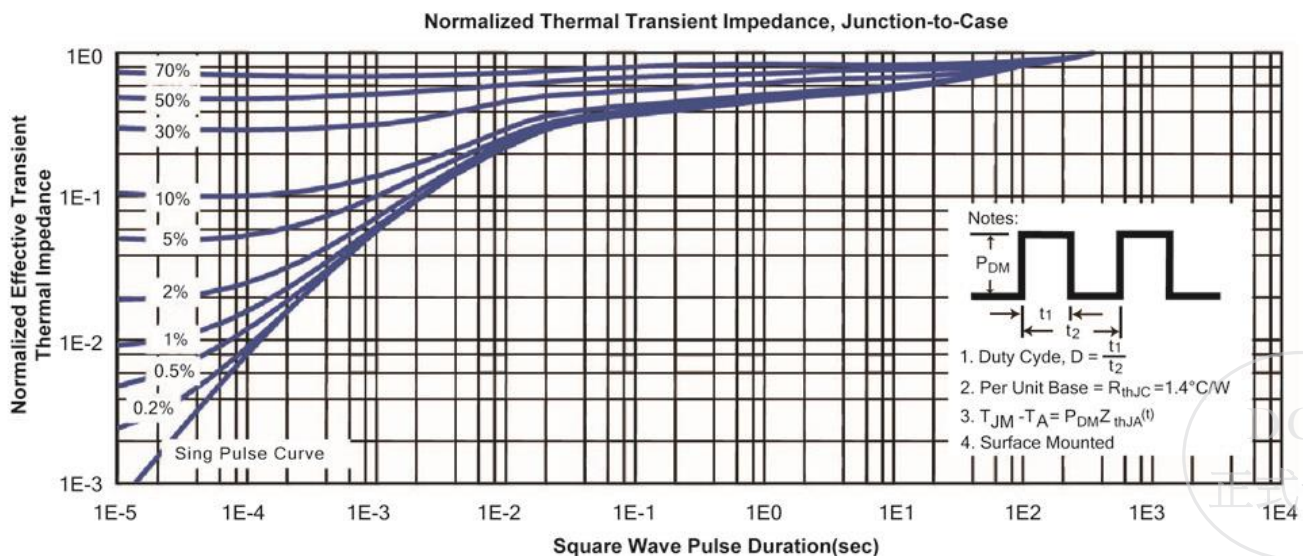
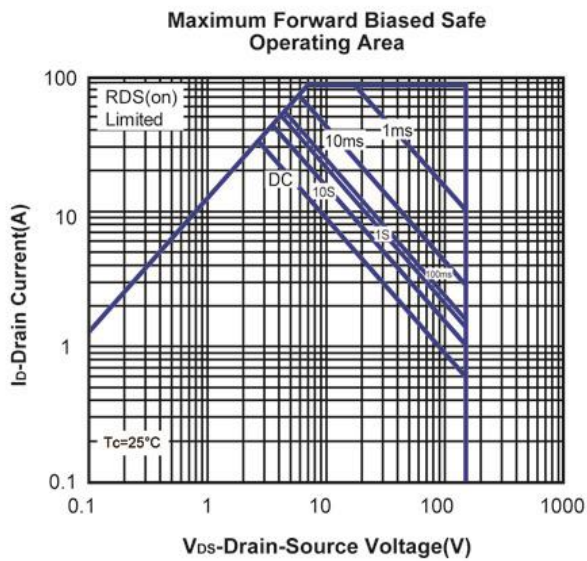
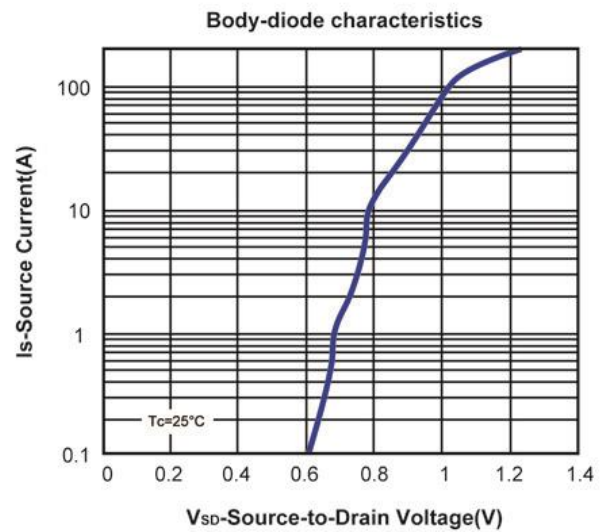
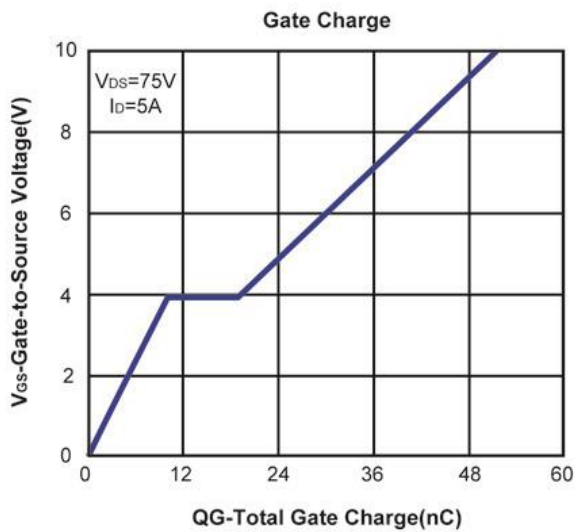
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Typical Characteristics (T_J =25°C Noted)

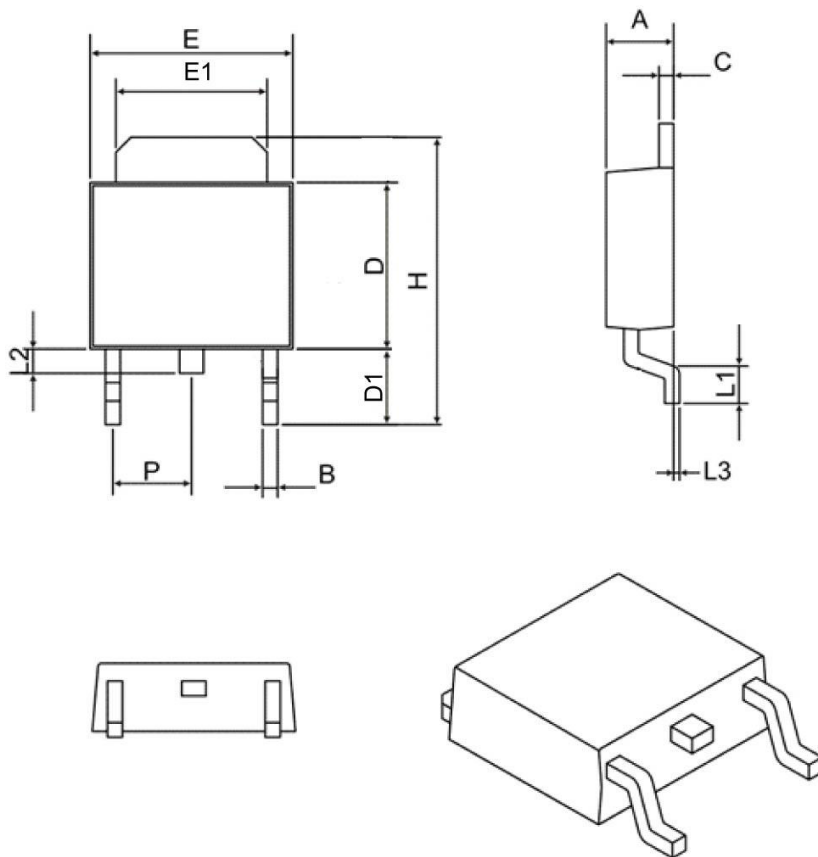


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TO252-3L Package Outline



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	

