

**N-Channel 100-V (D-S) MOSFET**

**GENERAL DESCRIPTION**

The MEE15N10-G is the N-Channel logic enhancement mode power field effect transistors, using high cell density, EMOS 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 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.

**FEATURES**

- $R_{DS(ON)} \leq 100m\Omega @ V_{GS}=10V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

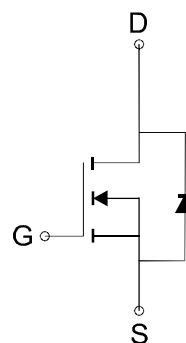
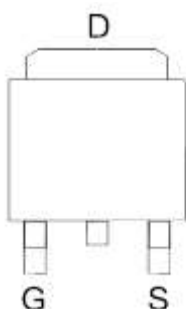
**APPLICATIONS**

- Power Management
- Synchronous Rectification
- Load Switch

**PIN CONFIGURATION**

(TO-252-3L)

Top View



N-Channel MOSFET

**Ordering Information:** MEE15N10-G (Green product-Halogen free)

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

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	$T_c=25^\circ C$	19.8
		$T_c=70^\circ C$	15.8
Pulsed Drain Current	$I_{DM}$	79	A
Maximum Power Dissipation	$P_D$	$T_c=25^\circ C$	62.5
		$T_c=70^\circ C$	40
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	$^\circ C$
Thermal Resistance-Junction to Case *	$R_{\theta JC}$	2	$^\circ C/W$

\* The device mounted on 1in<sup>2</sup> FR4 board with 2 oz copper



## N-Channel 100-V (D-S) MOSFET

Electrical Characteristics (T<sub>c</sub> = 25°C Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
<b>STATIC</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250 μA	100			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	1		3	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V			1	μA
R <sub>DS(ON)</sub>	Drain-Source On-Resistance <sup>a</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> = 8A		80	100	mΩ
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =8A, V <sub>GS</sub> =0V		0.9	1.1	V
<b>DYNAMIC</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =50V, V <sub>GS</sub> =10V, I <sub>D</sub> =8A		15.5		nC
Q <sub>gs</sub>	Gate-Source Charge			2.6		
Q <sub>gd</sub>	Gate-Drain Charge			3.6		
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz		314		pF
C <sub>oss</sub>	Output Capacitance			119		
C <sub>rss</sub>	Reverse Transfer Capacitance			15		
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DS</sub> =50V, R <sub>L</sub> =50Ω, V <sub>GS</sub> =10V, R <sub>G</sub> =1Ω I <sub>D</sub> =1A		8.4		Ns
t <sub>r</sub>	Turn-On Rise Time			24.8		
t <sub>d(off)</sub>	Turn-Off Delay Time			30.7		
t <sub>f</sub>	Turn-Off Fall Time			2.5		
T <sub>rr</sub>	Reverse Recovery Time	I <sub>D</sub> =7A, V <sub>GS</sub> =0V, di/dt=100A/us		25		ns
Q <sub>rr</sub>	Reverse Recovery Charge			24		nC

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

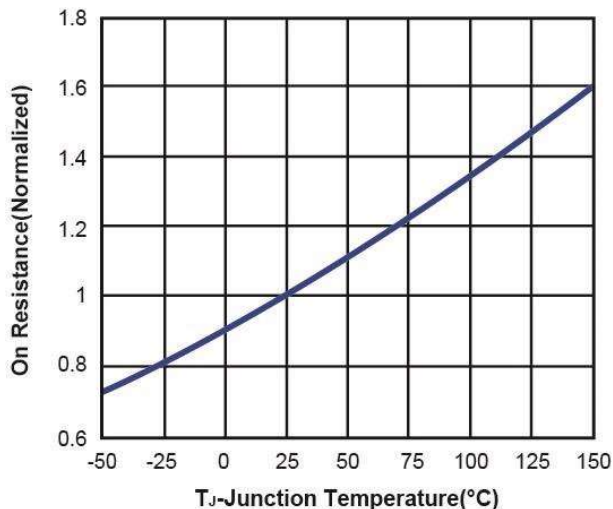
b. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.

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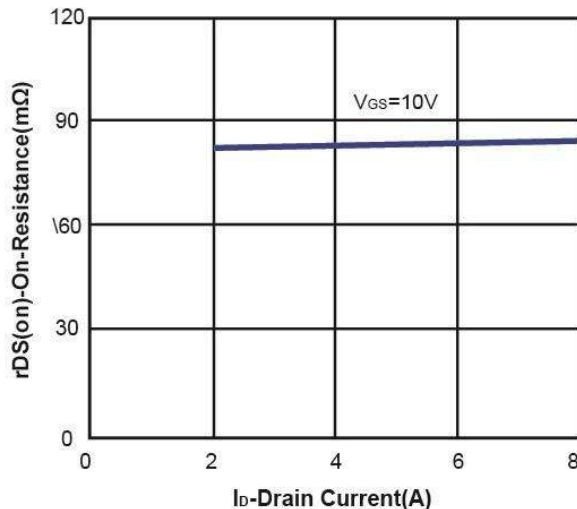
**N-Channel 100-V (D-S) MOSFET**

**Typical Characteristics (T<sub>J</sub> = 25°C Noted)**

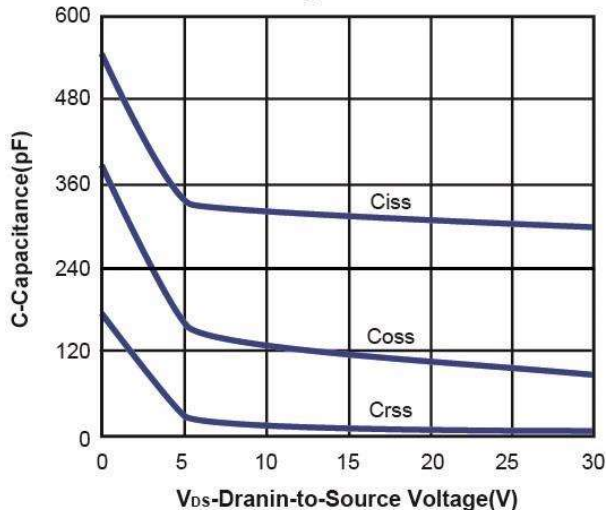
On Resistance vs. Junction Temperature



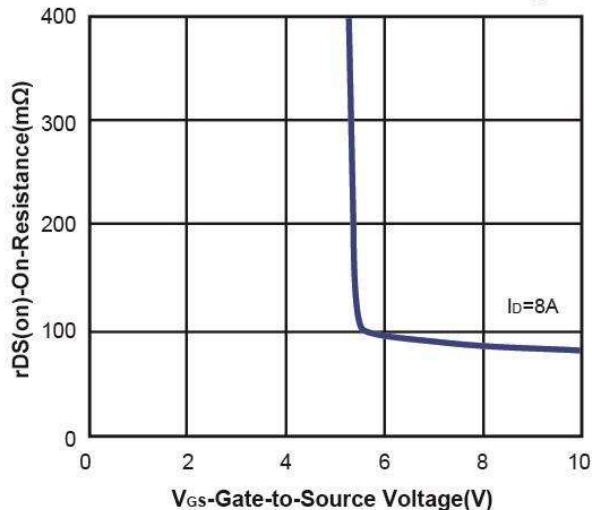
On Resistance vs. Drain Current



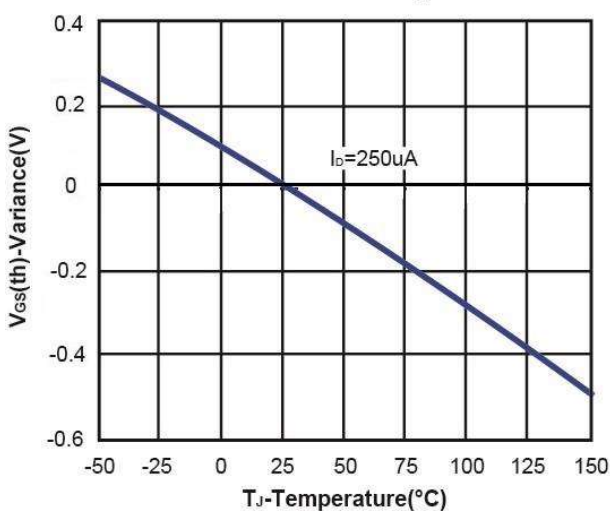
Capacitance



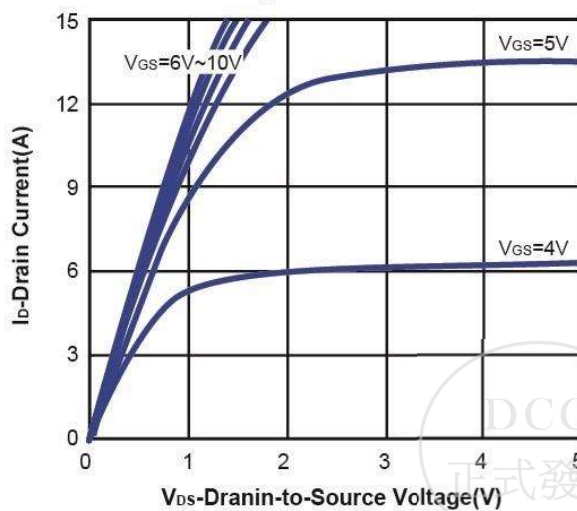
On Resistance vs. Gate-to-Source Voltage



Threshold Voltage

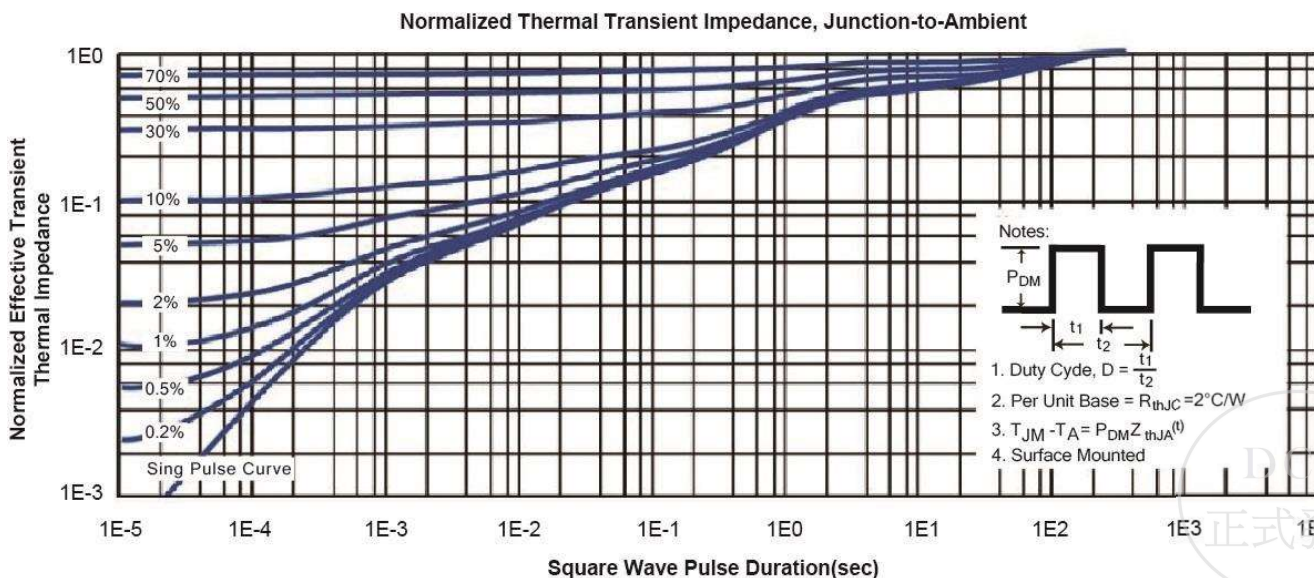
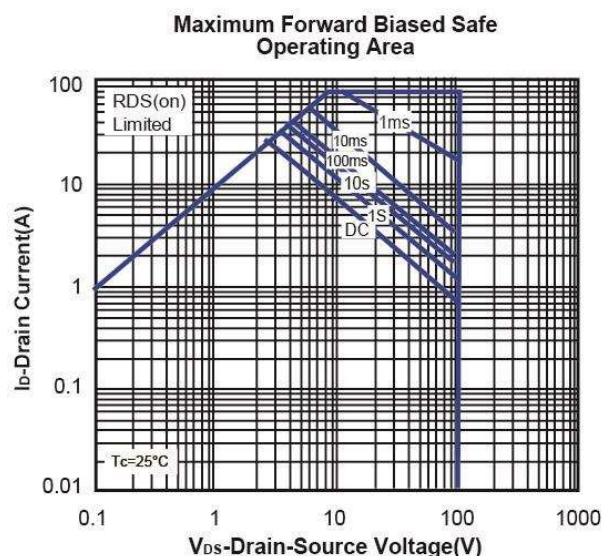
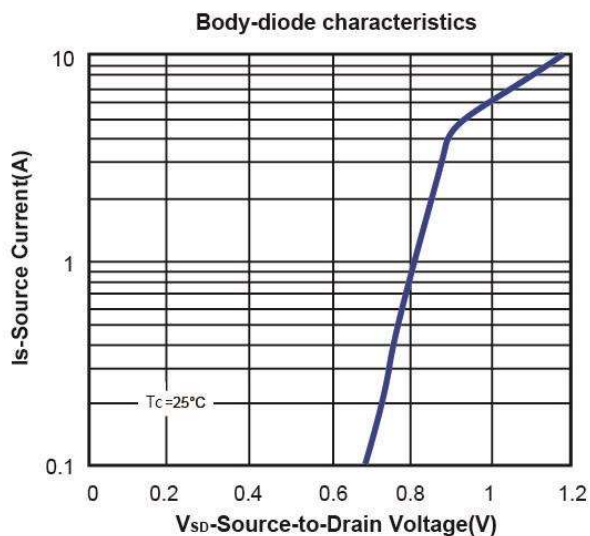
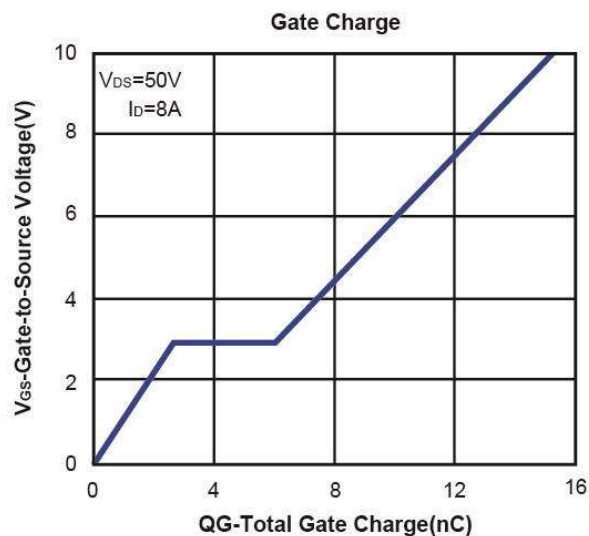


On-Region Characteristics

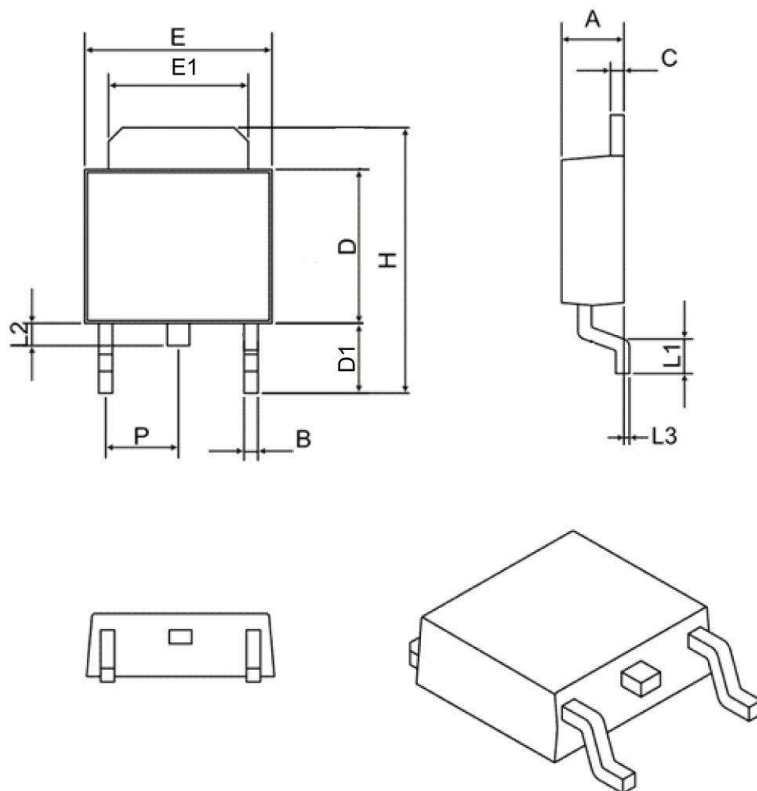


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**Typical Characteristics (T<sub>J</sub> =25°C Noted)**



**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	

