

**30V N-Channel Enhancement Mode MOSFET**

**GENERAL DESCRIPTION**

The ME60N03 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 LCD inverter, computer power management and DC to DC converter circuits which need low in-line power loss.

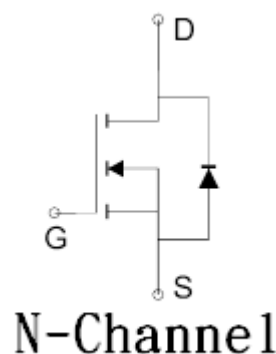
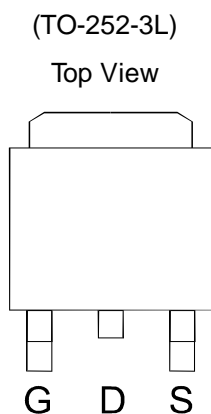
**FEATURES**

- $R_{DS(ON)} \leq 8.5m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 13m\Omega @ V_{GS}=4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

**APPLICATIONS**

- Power Management
- DC/DC Converter
- LCD TV & Monitor Display inverter
- CCFL inverter
- Secondary Synchronous Rectification

**PIN CONFIGURATION**



Ordering Information: ME60N03 (Pb-free)

ME60N03-G (Green product-Halogen free)

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

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		$V_{DSS}$	30	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Continuous Drain Current	$T_c=25^\circ C$	$I_D$	48.5	A
	$T_c=70^\circ C$			
Pulsed Drain Current		$I_{DM}$	60.6	A
Maximum Power Dissipation	$T_c=25^\circ C$	$P_D$	50	W
	$T_c=70^\circ C$		32	
Operating Junction and Storage Temperature Range		$T_J, T_{stg}$	-55 to 150	$^\circ C$
Thermal Resistance-Junction to Case		$R_{\theta JC}$	2.5	$^\circ C/W$

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

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## 30V N-Channel Enhancement Mode MOSFET

Electrical Characteristics (TA=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	30			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	1	1.6	3	V
I <sub>GSS</sub>	Gate-Body Leakage	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> =24V, V <sub>GS</sub> =0V			1	μA
R <sub>DS(ON)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =30A		6.5	8.5	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =20A		10	13	
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =20A, V <sub>GS</sub> =0V		0.87	1.5	V
<b>DYNAMIC</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =35A		22		nC
Q <sub>gs</sub>	Gate-Source Charge			4.5		
Q <sub>gd</sub>	Gate-Drain Charge			4		
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz		1219		pF
C <sub>oss</sub>	Output Capacitance			182		
C <sub>rss</sub>	Reverse Transfer Capacitance			88		
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V R <sub>G</sub> =24Ω, R <sub>L</sub> =15Ω, I <sub>D</sub> =1A		13		ns
t <sub>r</sub>	Turn-On Rise Time			10		
t <sub>d(off)</sub>	Turn-Off Delay Time			46		
t <sub>f</sub>	Turn-Off Fall Time			7		

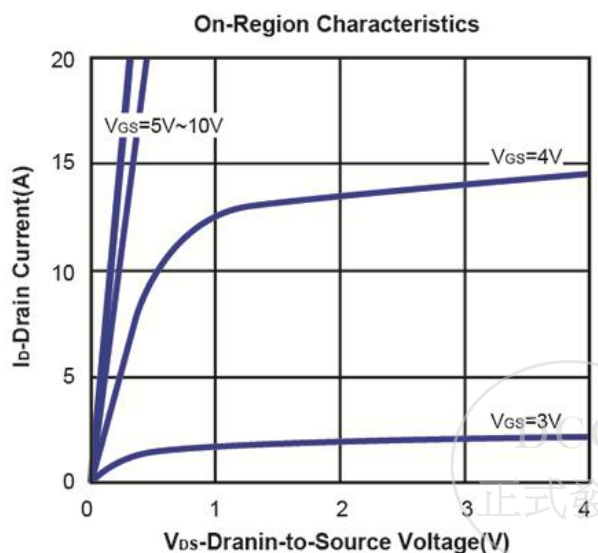
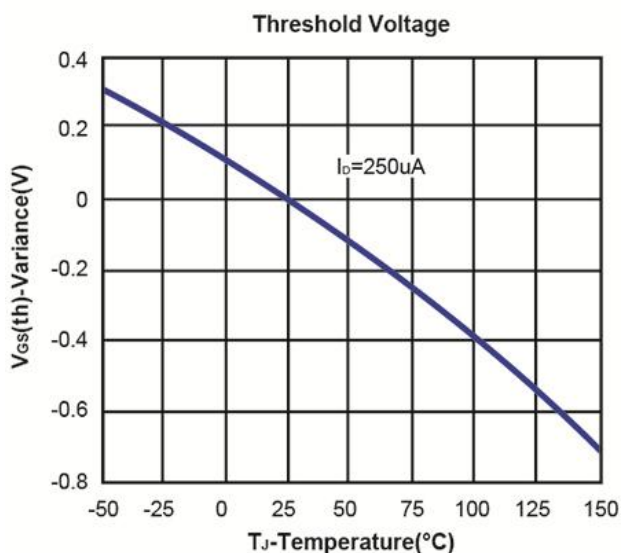
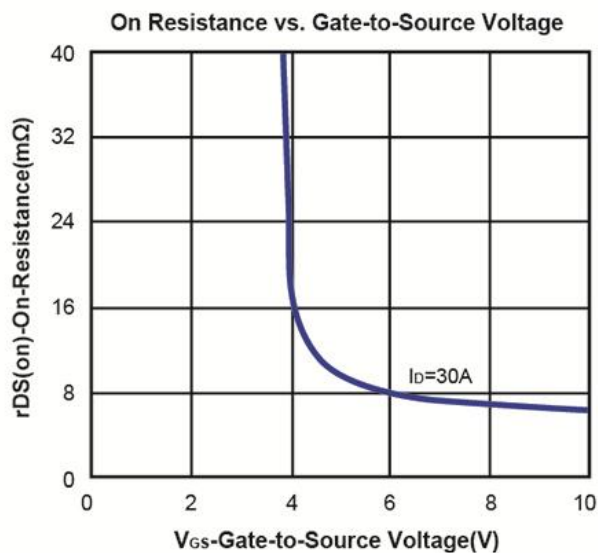
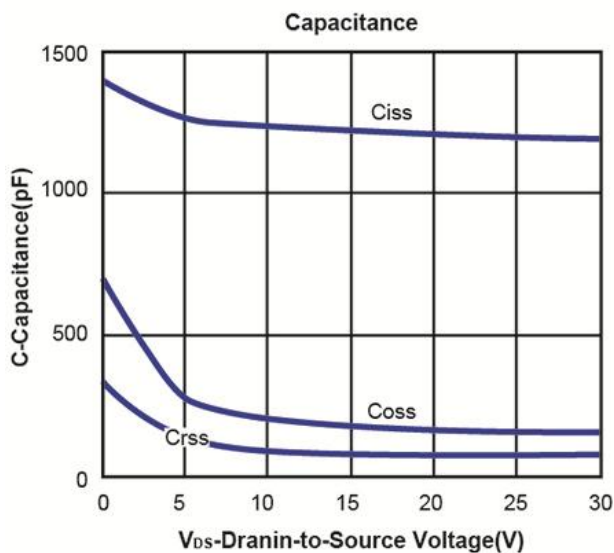
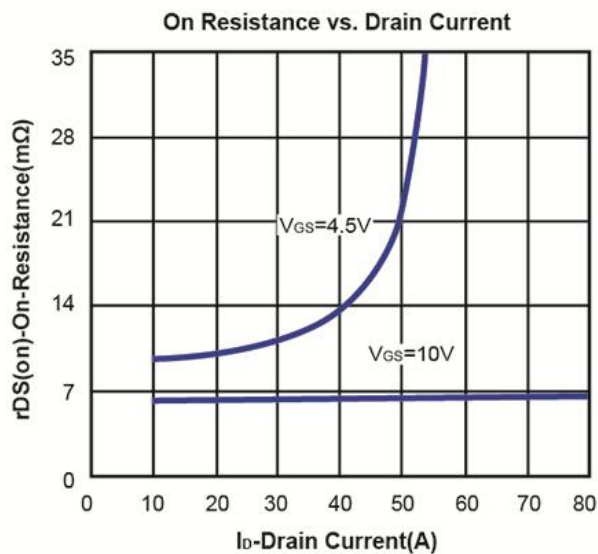
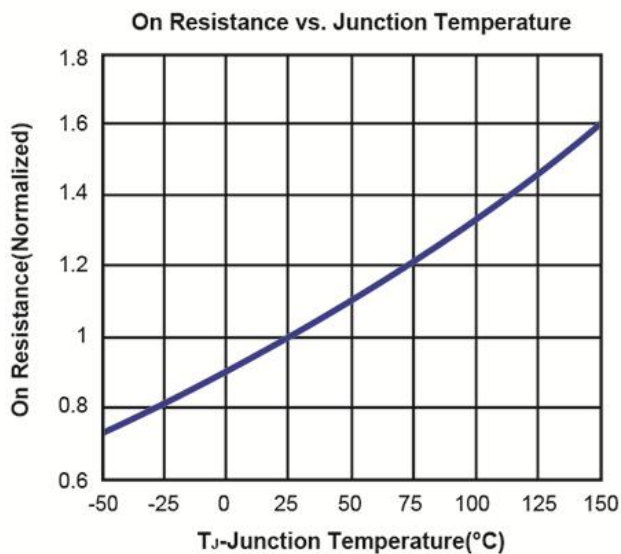
Note: a. Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%

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



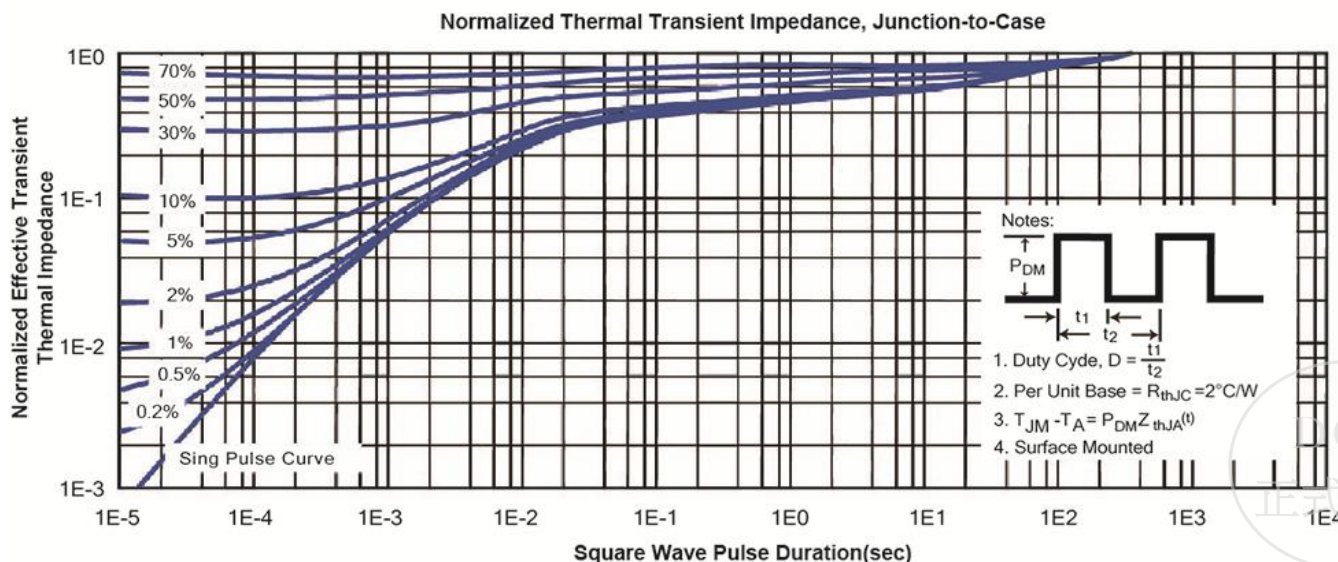
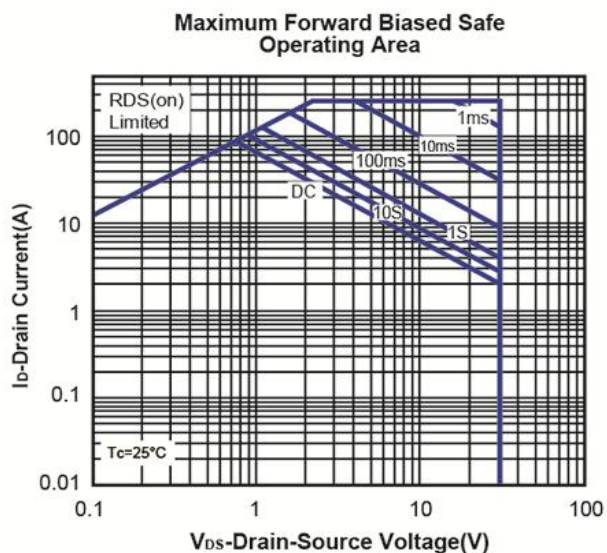
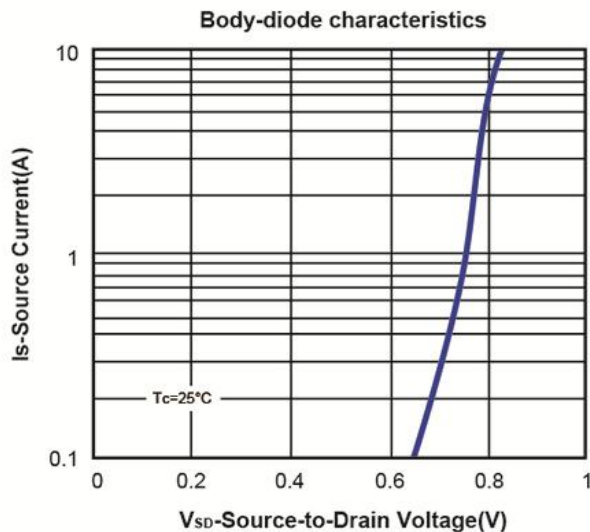
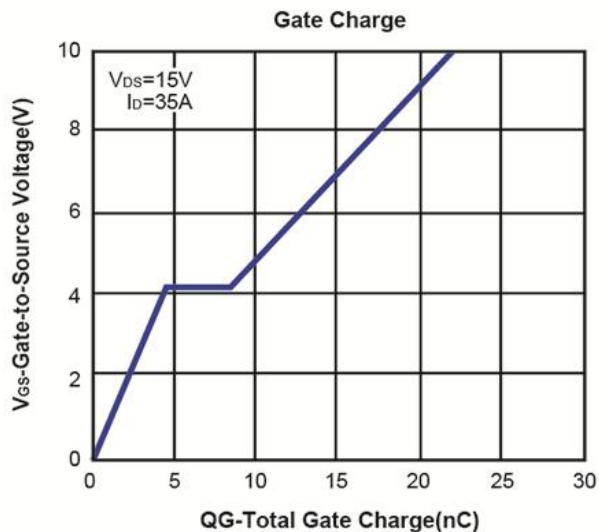
**30V N-Channel Enhancement Mode MOSFET**

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

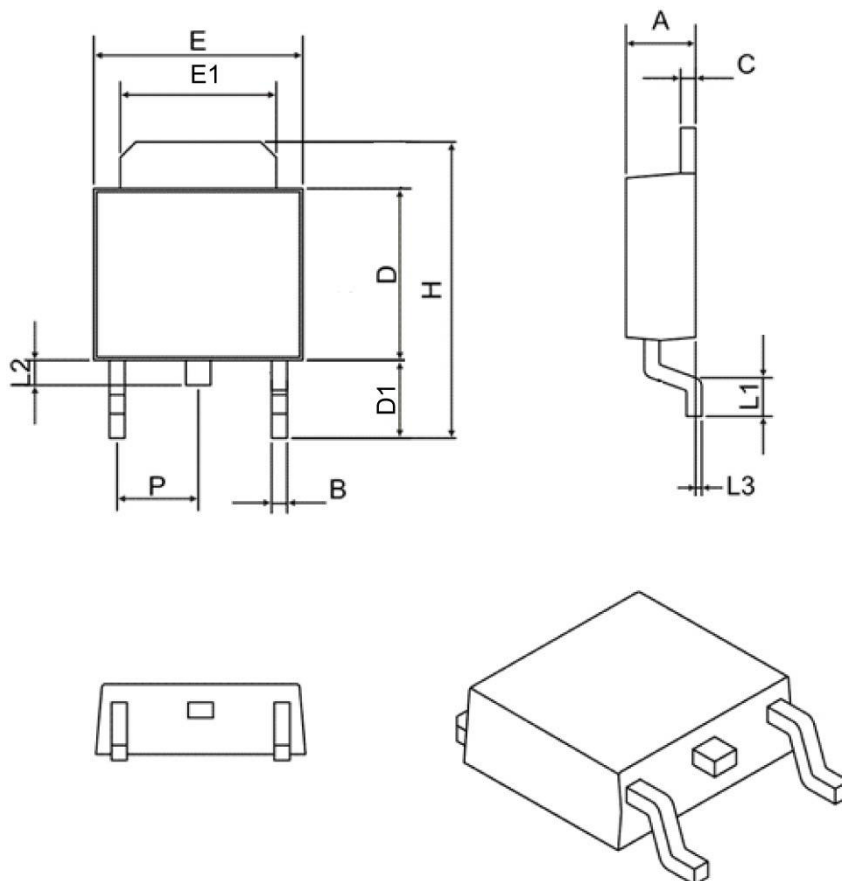


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**Typical Characteristics (T<sub>J</sub> =25°C Noted)**



## TO-252-3L 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	

