ME60N03S/ME60N03S-G

30V N-Channel Enhancement Mode MOSFET

V_{DS}=30V

$R_{DS(ON)}$, Vgs@10V,Ids@30A ≦ 10mΩ

$R_{DS(ON)}$, Vgs@4.5V,Ids@15A ≦18.5mΩ

APPLICATIONS

- Motherboard (V-Core)
- Portable Equipment
- DC/DC Converter
- Load Switch
- LCD Display inverter
- IPC

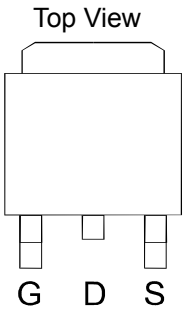
FEATURES

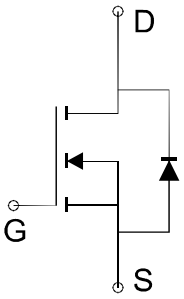
Advanced trench process technology

High density cell design for ultra low on-resistance

Specially designed for High-side switching of PWM application.

PIN CONFIGURATION (TO-252)





Ordering Information: ME60N03S (Pb-free)

ME60N03S-G (Green product-Halogen free)

Absolute Maximum Ratings (T_A=25℃ Unless Otherwise Noted)

Parameter		Symbol	Maximum Ratings		Unit
Drain-Source Voltage		V_{DS}	30		V
Gate-Source Voltage		V_{GS}	±20		V
Continuous Drain Current*	T_C=25℃	I_D	50		A
	T_C=70℃		40		
	T_A=25℃		14		
	T_A=70℃		11		
Pulsed Drain Current		I_{DM}	100		A
Maximum Power Dissipation*	T_C=25℃	P_D	40		W
	T_C=70℃		25		
	T_A=25℃		3.1		
	T_A=70℃		2		
Operating Junction and Storage Temperature Range		T_J, Tstg	-55 to 150		℃
Thermal Resistance-Junction to Ambient*		$R_{\theta JA}$	T≦10 sec	15	℃/W
			Steady State	40	
Thermal Resistance-Junction to Case		$R_{\theta JC}$	3.1		℃/W

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

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Electrical Characteristics (T_A=25℃ Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1		3	V
I_{GSS}	Gate-Body Leakage	V_{DS}=0V, V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=10V, I_D=30A		8.3	10	mΩ
		V_{GS}=4.5V, I_D=15A		14	18.5	
DYNAMIC						
Qg	Total Gate Charge	V_{DS}=15V, V_{GS}=10V, I_D=25A		22		nC
Qg	Total Gate Charge	V_{DS}=15V, V_{GS}=4.5V, I_D=25A		11		
Qgs	Gate-Source Charge			5.4		
Qgd	Gate-Drain Charge			5.5		
Ciss	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz		830		pF
Coss	Output Capacitance			150		
Crss	Reverse Transfer Capacitance			43		
Rg	Gate Resistance	V_{DS}=0V, V_{GS}=0V, f=1MHz		1		Ω
$t_{d(on)}$	Turn-On Delay Time	R_L=15Ω, V_{GEN} =10V, I_D=1A V_{DD}=15V, R_G=3Ω		13.5		ns
t_r	Turn-On Rise Time			13		
$t_{d(off)}$	Turn-Off Delay Time			42		
t_f	Turn-Off Fall Time			4		
SOURCE-DRAIN DIODE						
I_S	Max.Diode Forward Current				20	A
V_{SD}	Diode Forward Voltage	I_S=20A, V_{GS}=0V		0.87	1.5	V

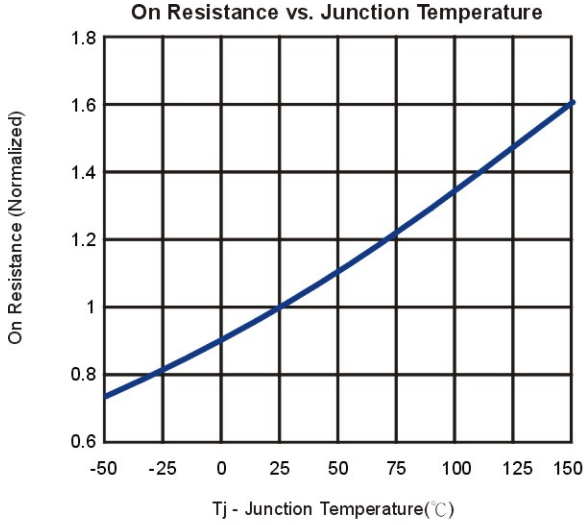
Note:a. Pulse test: pulse width＜=300us, duty cycle＜=2%

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

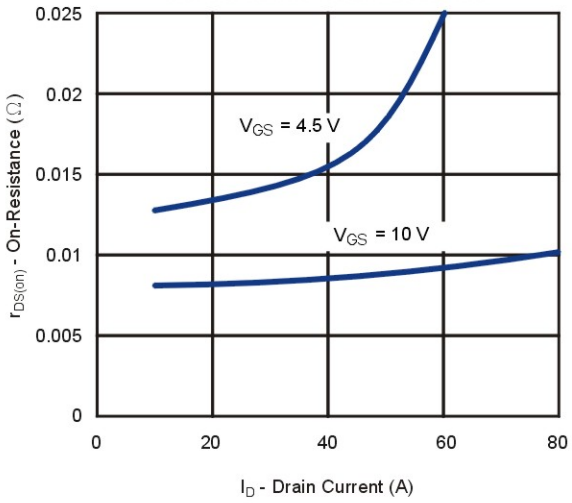
30V N-Channel Enhancement Mode MOSFET

Typical Characteristics (T_J =25℃ Noted)

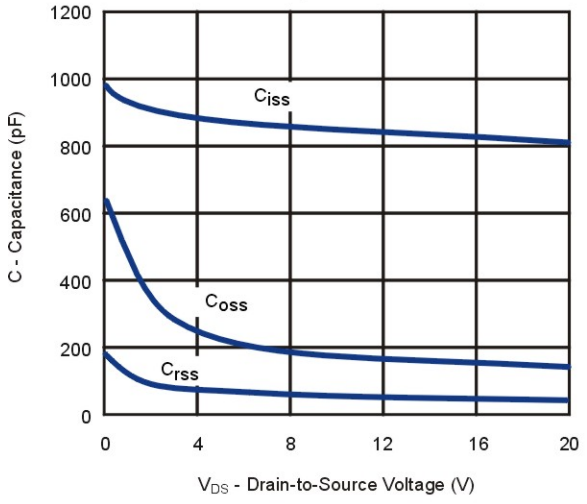
On Resistance vs. Junction Temperature



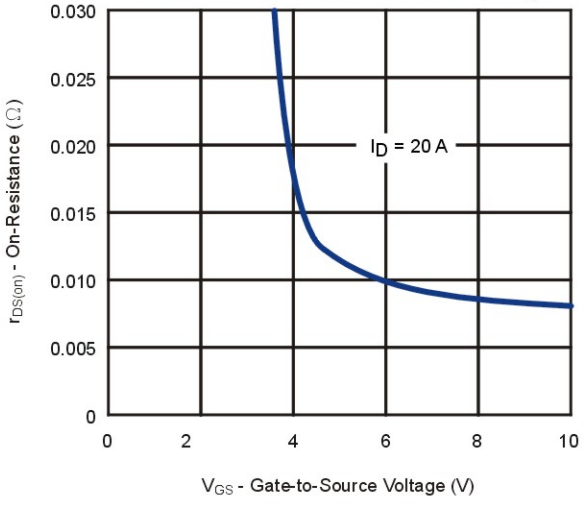
On-Resistance vs. Drain Current



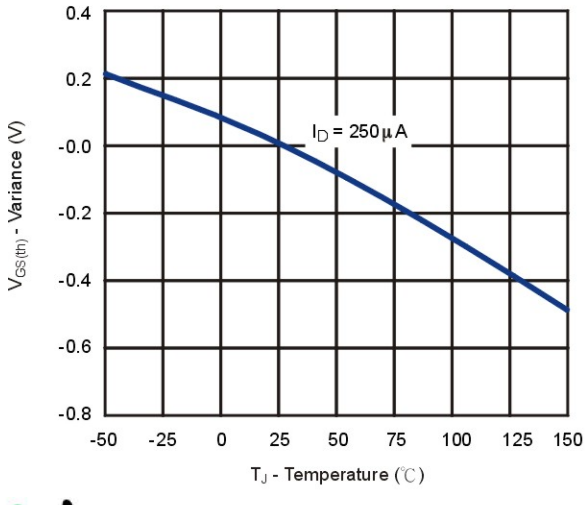
Capacitance



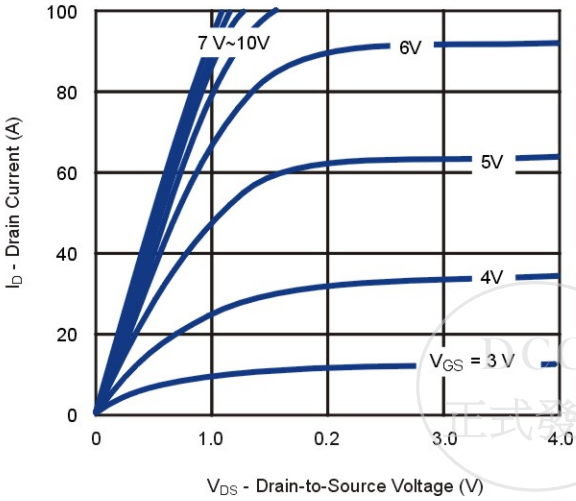
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

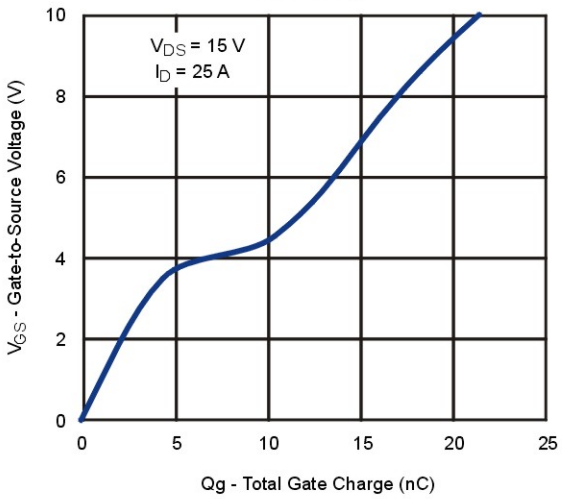


On-Region Characteristics

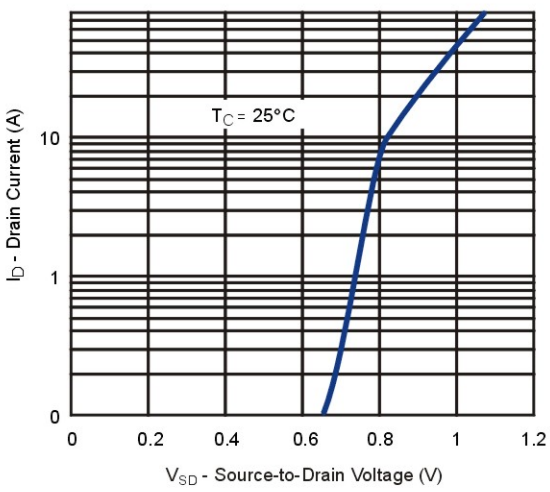


Typical Characteristics (T_J =25℃ Noted)

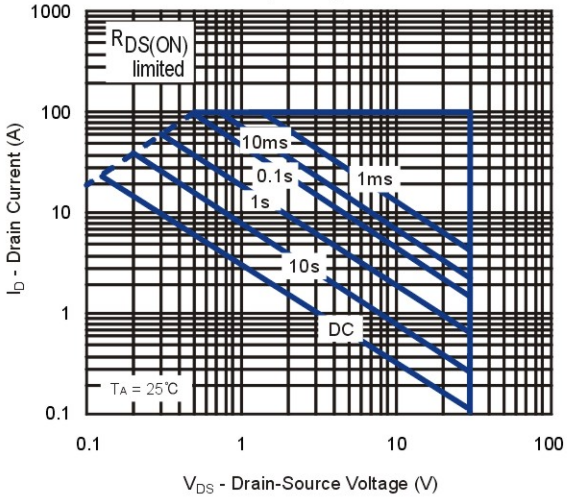
Gate Charge



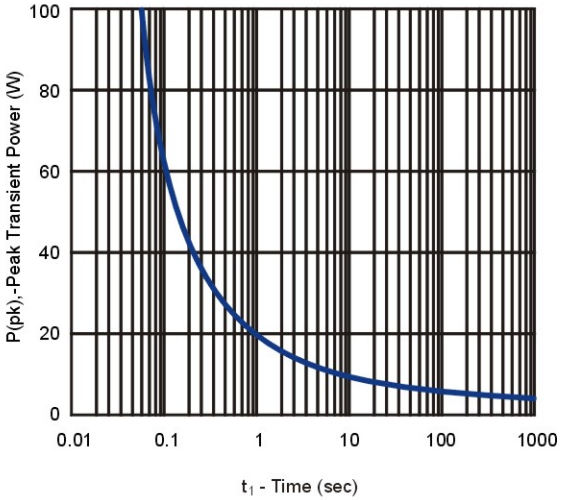
On-Resistance vs. Drain Current



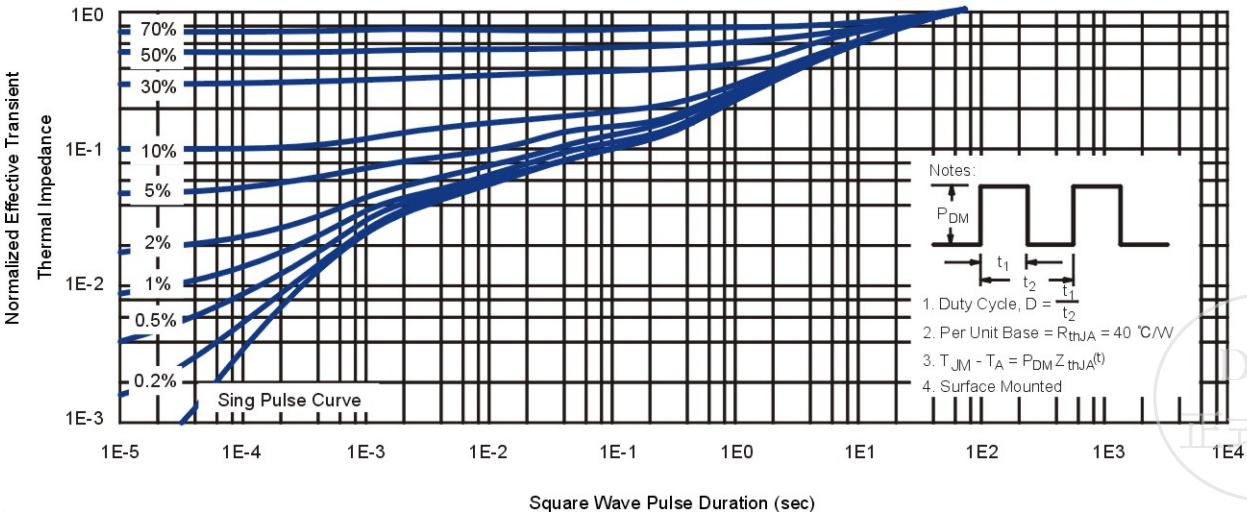
Maximum Forward Biased Safe Operating Area



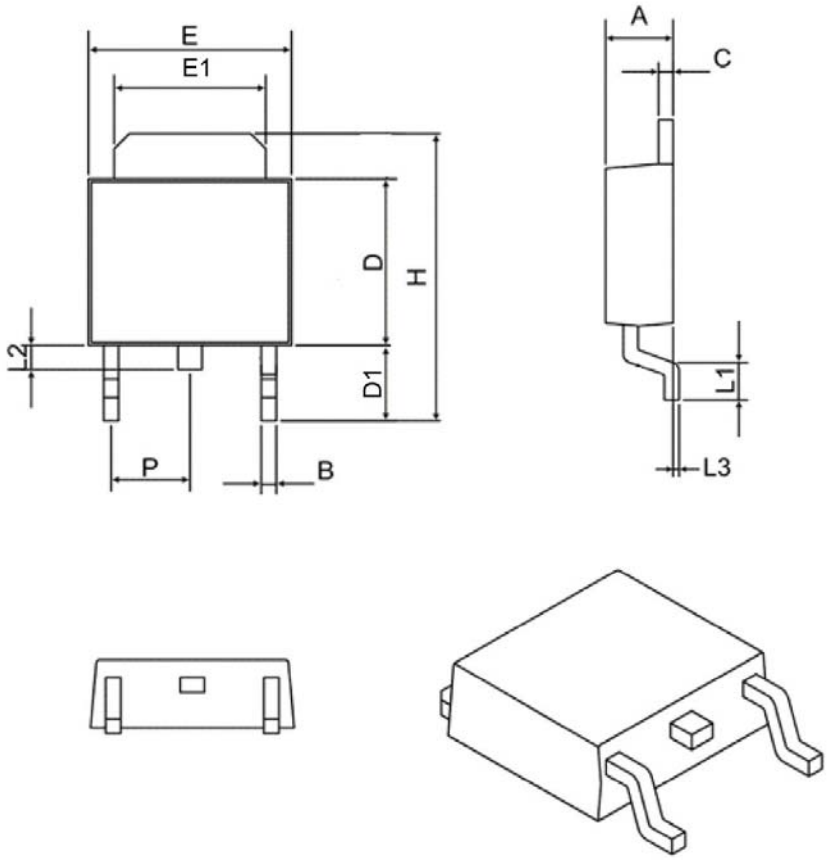
Single Pulse Maximum Power Dissipation



Normalized Thermal Transient Impedance, Junction-to-Ambient



TO-252 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	