

N-Channel 60V (D-S) MOSFET

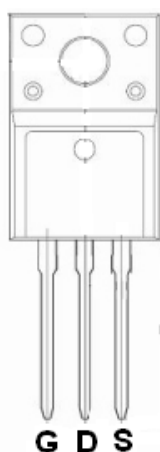
GENERAL DESCRIPTION

The ME3205F 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, 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.

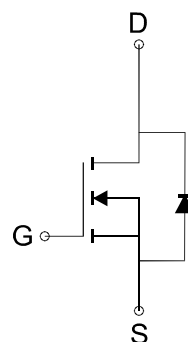
PIN CONFIGURATION

(TO-220F)

Top View



G D S



N-Channel MOSFET

Ordering Information: ME3205F (Pb-free)

ME3205F-G (Green product-Halogen free)

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

Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V _{DS}	60	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current*	T _c =25°C	I _D	74	A
	T _c =70°C		59	
Pulsed Drain Current		I _{DM}	296	A
Maximum Power Dissipation	T _c =25°C	P _D	52	W
	T _c =70°C		33	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 175	°C
Thermal Resistance-Junction to Case**		R _{θJC}	2.42	°C/W

*Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 80A.

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

FEATURES

- R_{DS(ON)} ≤ 6mΩ @ 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
- DC/DC Converter

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Electrical Characteristics (T_c =25℃ Unless Otherwise Specified)

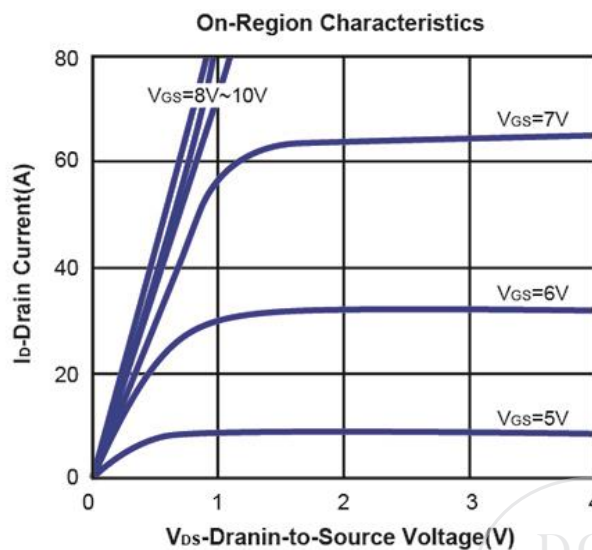
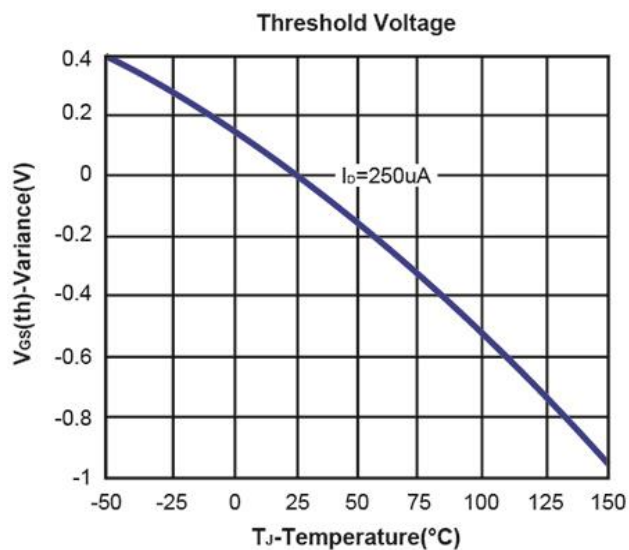
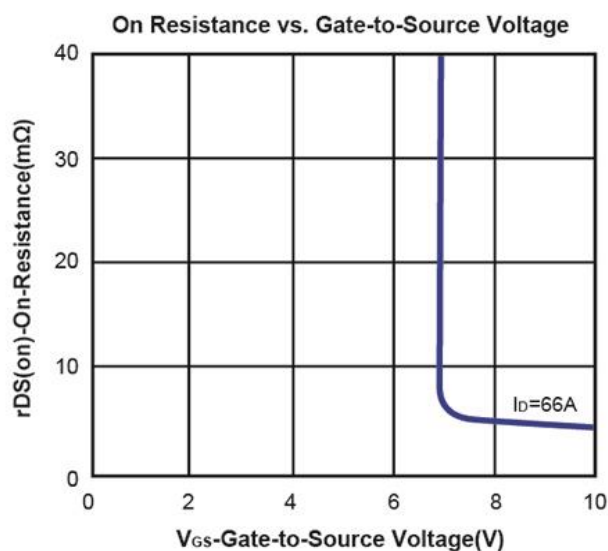
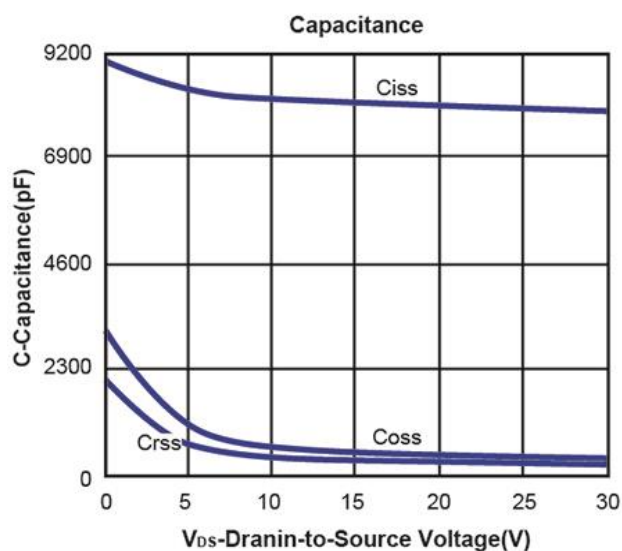
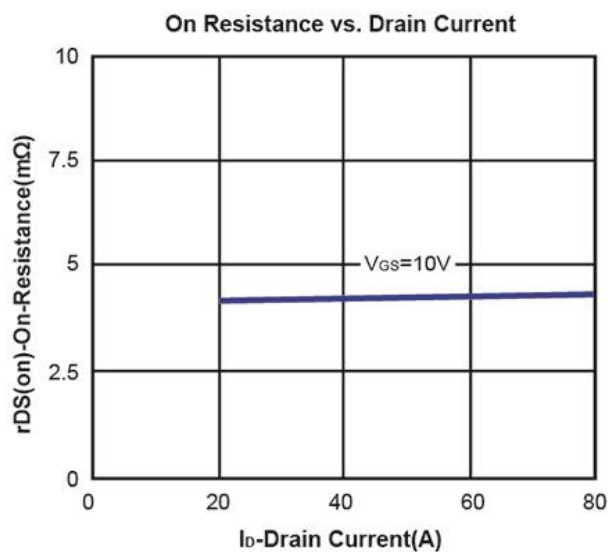
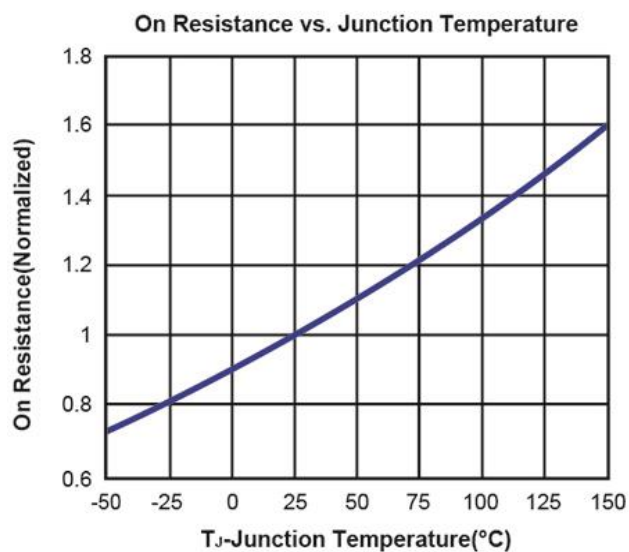
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	60			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μ A	2		4	V
I _{GSS}	Gate-Body Leakage	V _{DS} =0V, V _{GS} = $\pm$ 20V			$\pm$ 100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60, V _{GS} =0V			1	μ A
R _{DS(ON)}	Drain-Source On-Resistance*	V _{GS} =10V, I _D =66A		4.6	6	m Ω
V _{SD}	Diode Forward Voltage*	I _S =66A, V _{GS} =0V			1.3	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DD} =30V, V _{GS} =10V, I _D =66A		141		nc
Q _{gs}	Gate-Source Charge			39.4		
Q _{gd}	Gate-Drain Charge			37.8		
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz		7971		pF
C _{oss}	Output Capacitance			366		
C _{rss}	Reverse Transfer Capacitance			288		
t _{d(on)}	Turn-On Delay Time	V _{DD} =30V, I _D =66A, V _{GS} =10V, R _G =6.8 Ω , R _L =0.5 Ω		53.7		ns
t _r	Turn-On Rise Time			263		
t _{d(off)}	Turn-Off Delay Time			102		
t _f	Turn-Off Fall Time			45.9		

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.

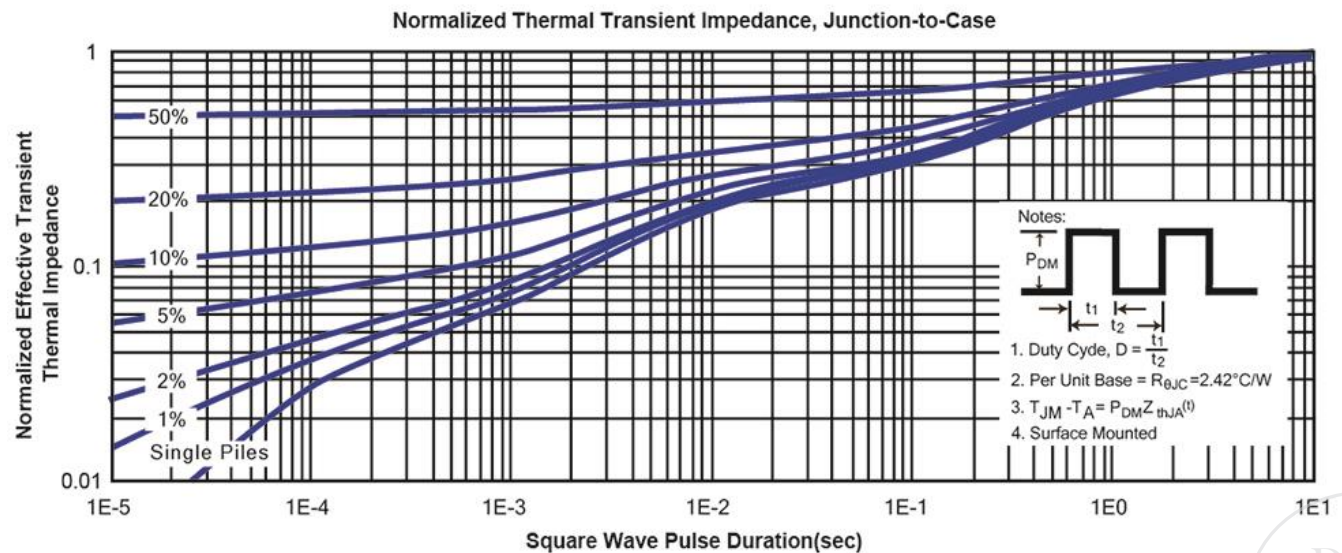
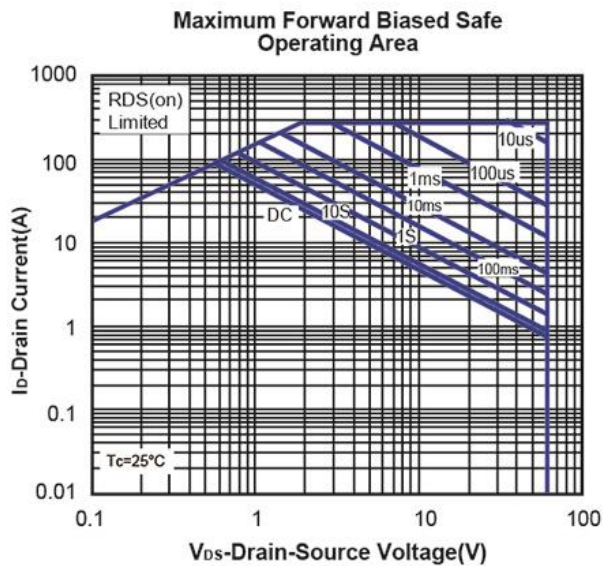
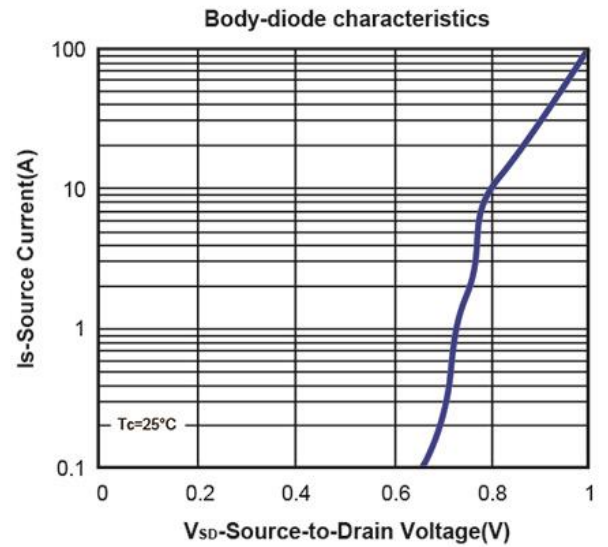
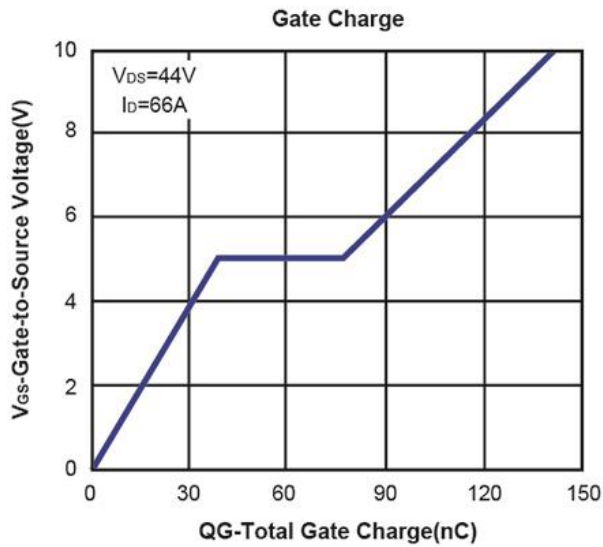
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Typical Characteristics (T_J =25°C Noted)

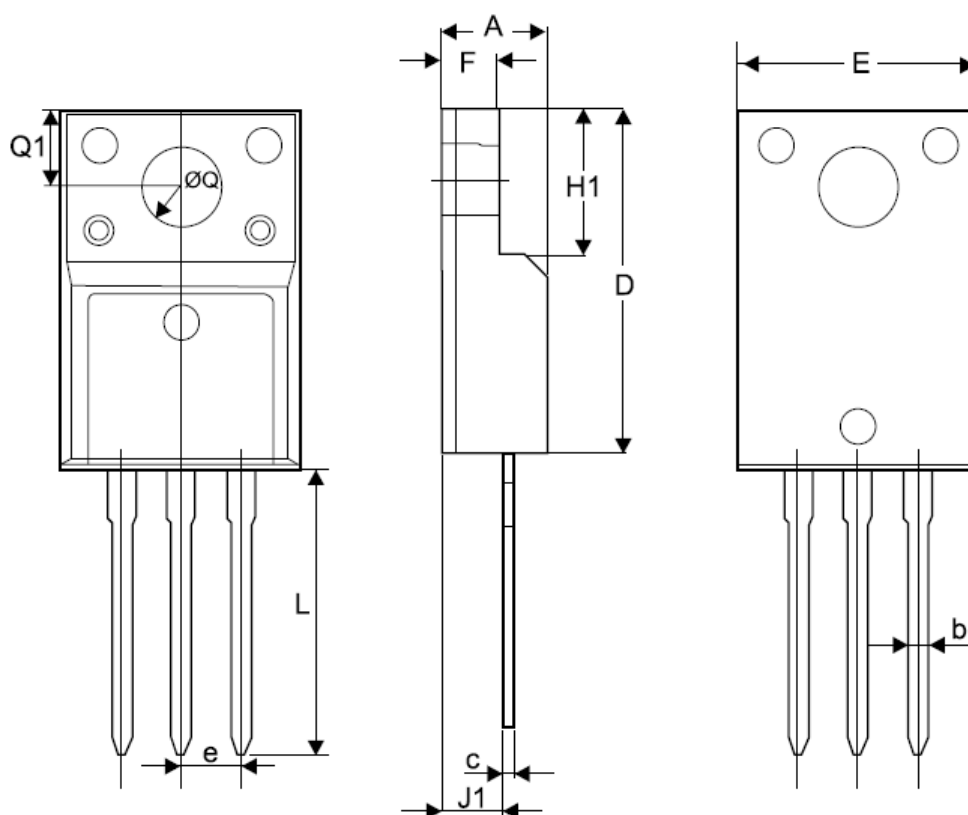


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Typical Characteristics (T_J =25°C Noted)



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
Ø Q	2.92	3.38
Q1	3.05	3.55