

P-Channel 30V (D-S) MOSFET

GENERAL DESCRIPTION

The ME40P03T is the P-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.

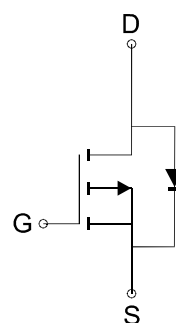
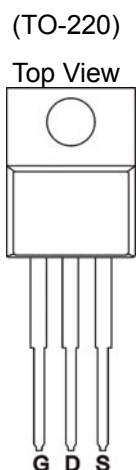
FEATURES

- $R_{DS(ON)} \leq 11m\Omega @ V_{GS} = -10V$
- $R_{DS(ON)} \leq 16m\Omega @ V_{GS} = -4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- Power Management in Note book
- DC/DC Converter
- Load Switch
- LCD Display inverter

PIN CONFIGURATION



P-Channel MOSFET

Ordering Information: ME40P03T (Pb-free)

ME40P03T-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}	-30	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _c =25°C	I _D	-68.6	A
	T _c =70°C		-57.4	
Pulsed Drain Current		I _{DM}	-274	A
Maximum Power Dissipation	T _c =25°C	P _D	75	W
	T _c =70°C		52.5	
Operating Junction Temperature		T _J	-55 to 175	°C
Thermal Resistance-Junction to Case*		R _{θJC}	2	°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						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250 μ A	-30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250 μ A	-1		-3	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} =-30, V _{GS} =0V			-1	μ A
R _{DS(ON)}	Drain-Source On-Resistance*	V _{GS} =-10V, I _D =-20A		9	11	m Ω
		V _{GS} =-4.5V, I _D =-16A		12	16	
V _{SD}	Diode Forward Voltage*	I _{SD} =-25A, V _{GS} =0V			-1.2	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DD} =-25V, V _{GS} =-4.5V, I _D =-24A		42.1		nc
Q _{gs}	Gate-Source Charge			13.7		
Q _{gd}	Gate-Drain Charge			24.9		
C _{iss}	Input Capacitance	V _{DS} =-25V, V _{GS} =0V, f=1MHz		3130		pF
C _{oss}	Output Capacitance			376		
C _{rss}	Reverse Transfer Capacitance			291		
t _{d(on)}	Turn-On Delay Time	V _{DD} =-15V, I _D =-25A, V _{GS} =-10V, R _G =6.2 Ω , R _L =0.6 Ω		118		ns
t _r	Turn-On Rise Time			98.6		
t _{d(off)}	Turn-Off Delay Time			171		
t _f	Turn-Off Fall Time			58.6		

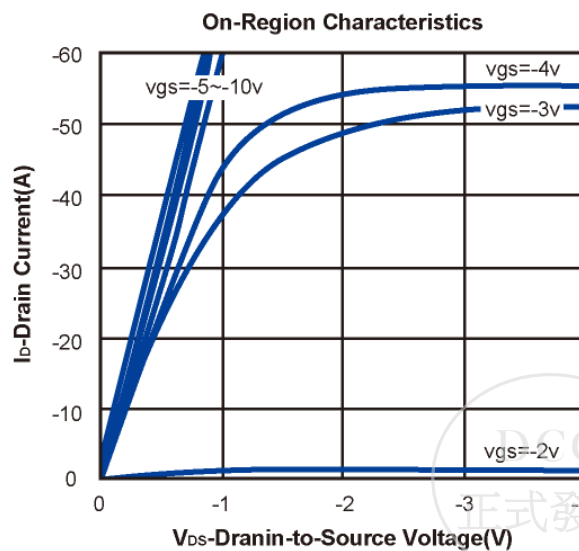
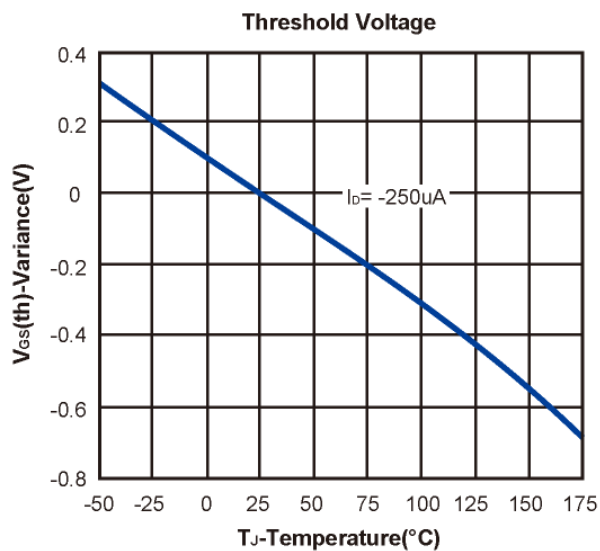
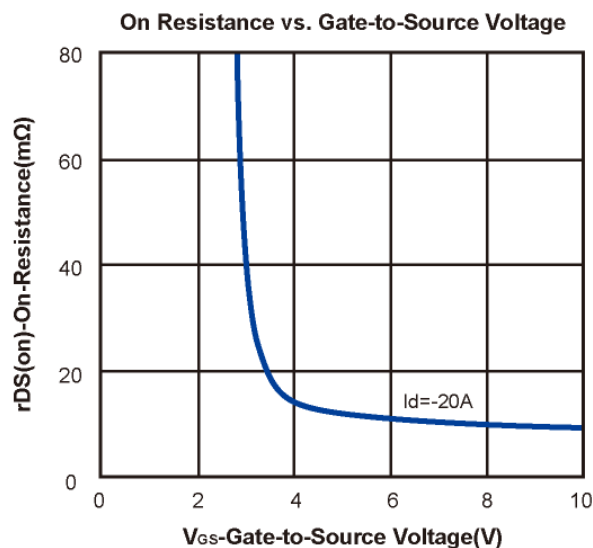
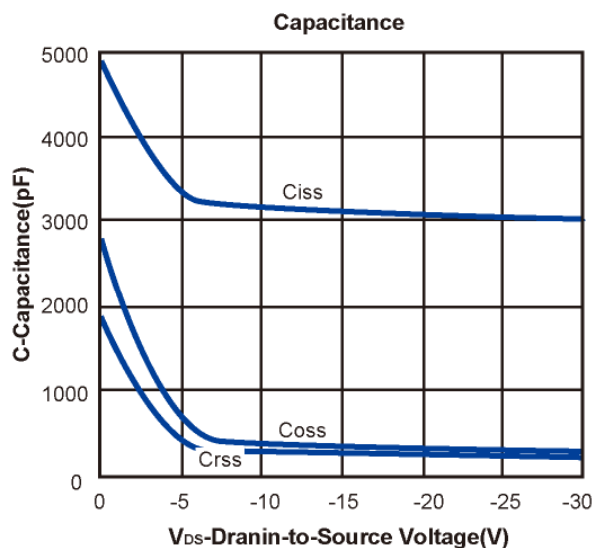
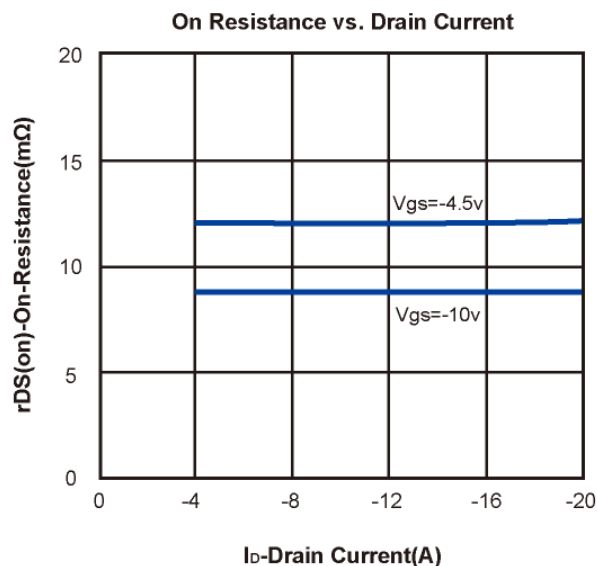
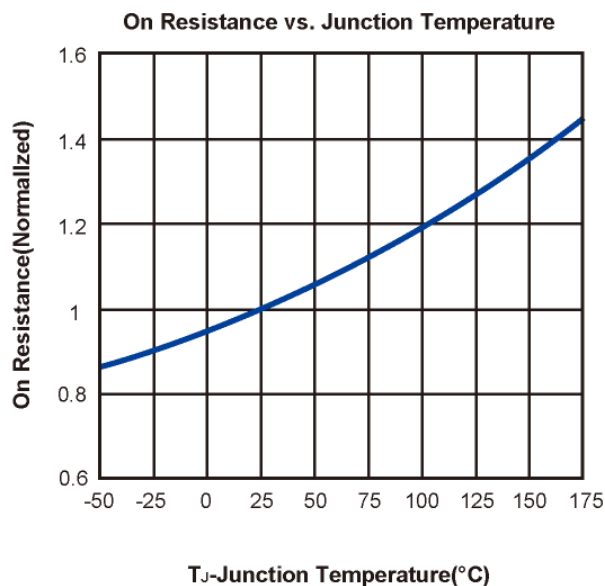
Notes: a, pulse test: pulse width $\leq$ 300us, duty cycle $\leq$ 2%, Guaranteed by design, not subject to production testing.

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



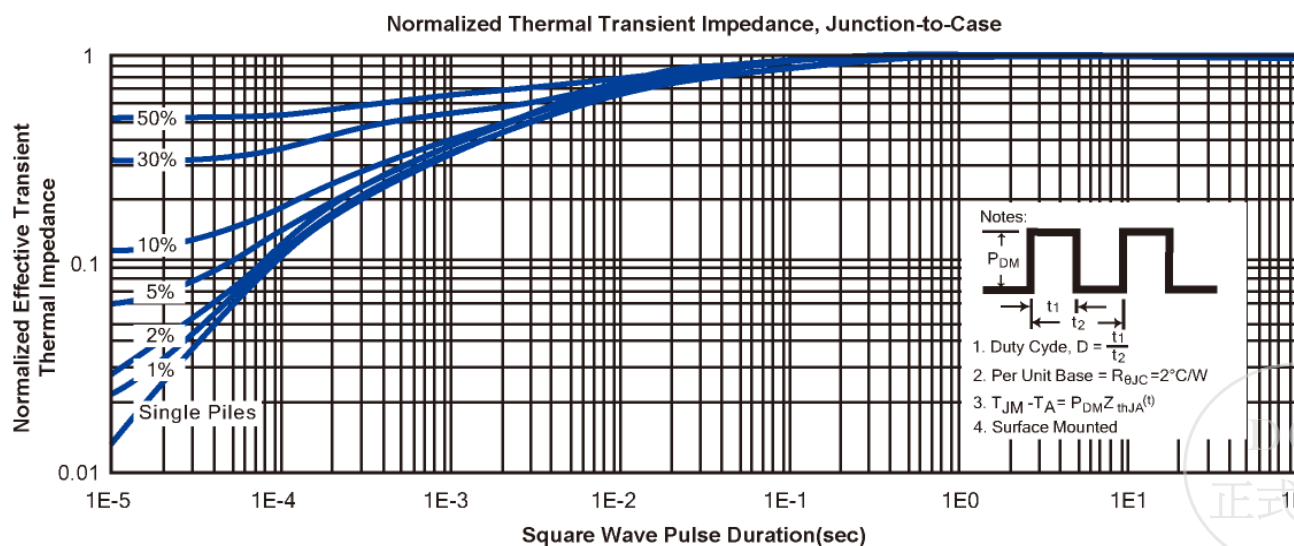
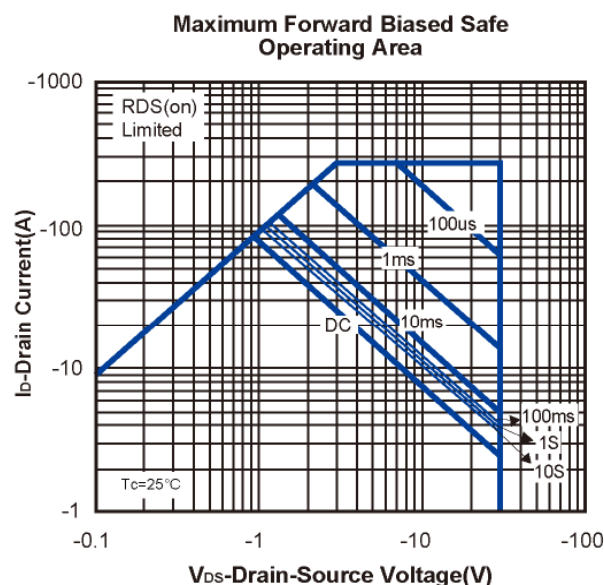
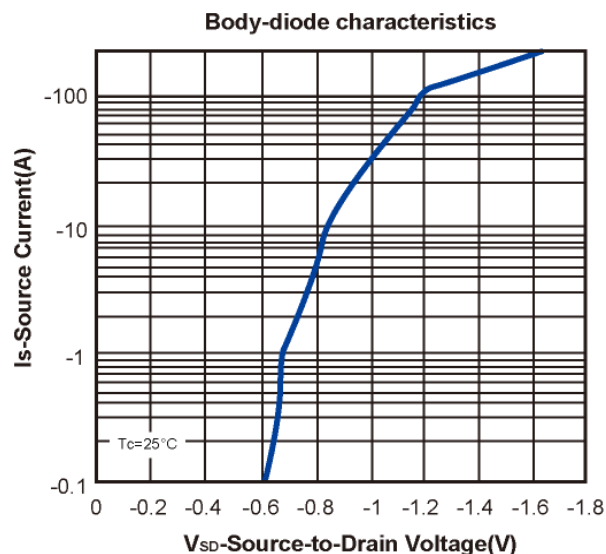
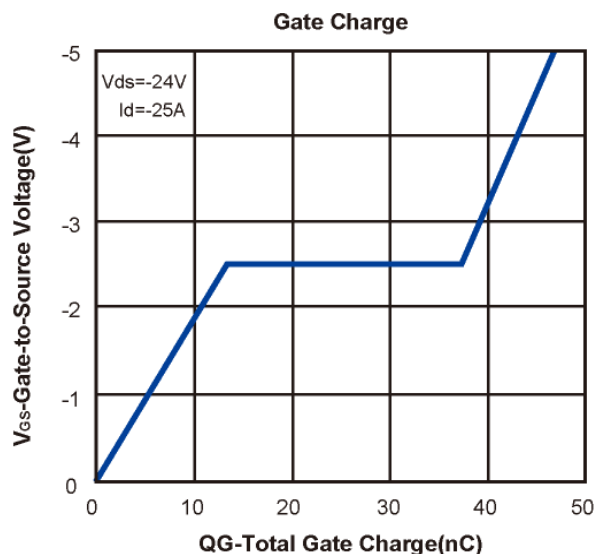
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Typical Characteristics (T_J = 25°C Noted)

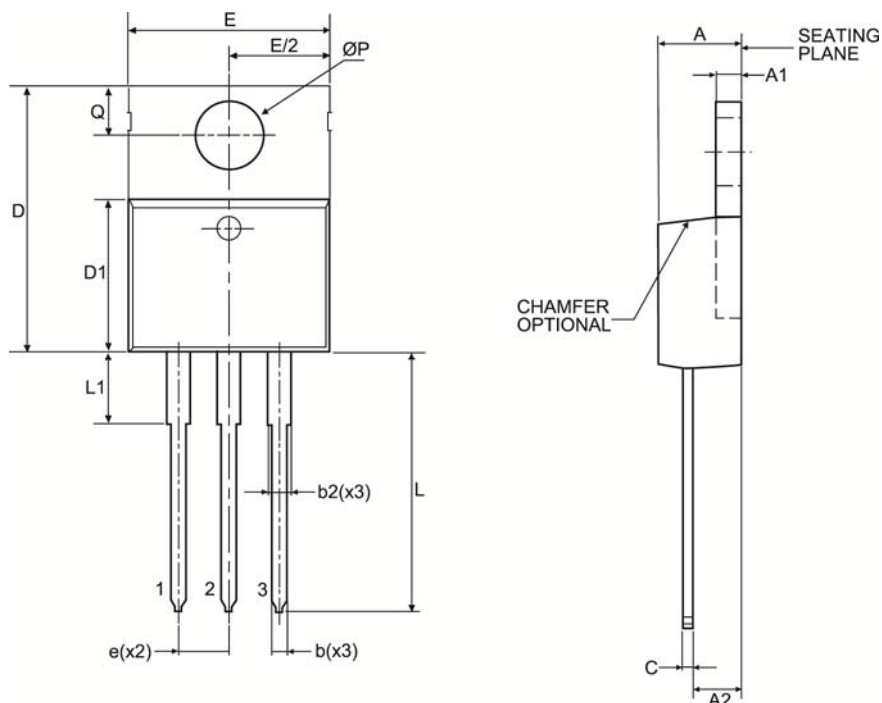


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TO-220 Package Outline



Symbol	MILLIMETERS (mm)	
	MIN	MAX
A	3.50	4.90
A1	1.00	1.40
A2	2.00	3.00
b	0.70	1.40
c	0.35	0.65
D	14.00	16.50
D1	8.30	9.50
E	9.60	10.70
e	2.54 BSC	
L	12.50	15.00
ØP	3.60 TYP	
Q	2.50	3.10
b2	1.10	1.80
L1	2.40	3.20

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