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

GENERAL DESCRIPTION

The ME120N10T is the N-Channel logic enhancement mode power field effect transistors, using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on state resistance.

FEATURES

● $R_{DS(ON)} \leqq 5.0m\Omega$ @V_{GS}=10V
● Super high density cell design for extremely low $R_{DS(ON)}$
● Exceptional on-resistance and maximum DC current capability

PIN CONFIGURATION

(TO-220)
Top View

G D S

D

G

S
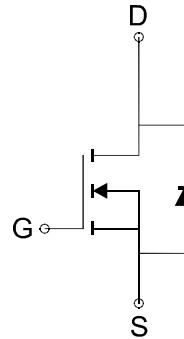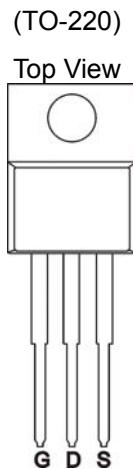
N-Channel MOSFET

Ordering Information : ME120N10T(Pb-free)
ME120N10T-G(Green product-Halogen free)

Absolute Maximum Ratings (T$_A$=25℃ Unless Otherwise Noted)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V$_{DSS}$	100	V
Gate-Source Voltage		V$_{GSS}$	±25	V
Continuous Drain Current*	T$_C$=25℃	I$_D$	180	A
	T$_C$=100℃		132	
Pulsed Drain Current		I$_{DM}$	640	A
Maximum Power Dissipation	T$_C$=25℃	P$_D$	250	W
	T$_C$=100℃		125	
Operating Junction Temperature		T$_J$	-55 to 175	℃
Thermal Resistance-Junction to Case**		R$_{θJC}$	0.6	℃/W

* Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 180A.

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

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

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	100			V
V$_{GS(th)}$	Gate Threshold Voltage	V$_{DS}$=V$_{GS}$, I$_D$=250μA	2	3	4	V
I$_{GSS}$	Gate Leakage Current	V$_{DS}$=0V, V$_{GS}$=±25V			±100	nA
I$_{DSS}$	Zero Gate Voltage Drain Current	V$_{DS}$=100V, V$_{GS}$=0V			1	μA
R$_{DS(ON)}$	Drain-Source On-Resistance [a]	V$_{GS}$=10V, I$_D$= 90A		5.0	6.5	mΩ
V$_{SD}$	Diode Forward Voltage	I$_S$=90A, V$_{GS}$=0V		0.8	1.0	V
DYNAMIC						
Qg	Total Gate Charge	V$_{DS}$=80V, V$_{GS}$=10V, I$_D$=90A		180		nC
Qgs	Gate-Source Charge			34		
Qgd	Gate-Drain Charge			60		
Ciss	Input Capacitance	V$_{DS}$=25V, V$_{GS}$=0V, f=1MHz		7889		pF
Coss	Output Capacitance			1013		
Crss	Reverse Transfer Capacitance			631		
Rg	Gate-Resistance	V$_{DS}$=0V, V$_{GS}$=0V, f=1MHz		2.3		Ω
t$_{d(on)}$	Turn-On Delay Time	V$_{DD}$=50V, R$_G$=6Ω, V$_{GS}$=10V, I$_{DS}$=90A		28		ns
tr	Turn-On Rise Time			45		
t$_{d(off)}$	Turn-Off Delay Time			85		
tf	Turn-Off Fall Time			50		

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

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

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

**Typical Characteristics (TJ =25℃ Noted)**

Power Dissipation

P_{tot} - Power (W) vs T_j - Junction Temperature (°C)

$T_C=25^oC$

Drain Current

limited by package

I_D - Drain Current (A) vs T_j - Junction Temperature (°C)

$T_C=25^oC, V_G=10V$

Safe Operation Area

I_D - Drain Current (A) vs V_{DS} - Drain - Source Voltage (V)

Rds(on) Limit

100us
1ms
10ms
DC

$T_C=25^oC$
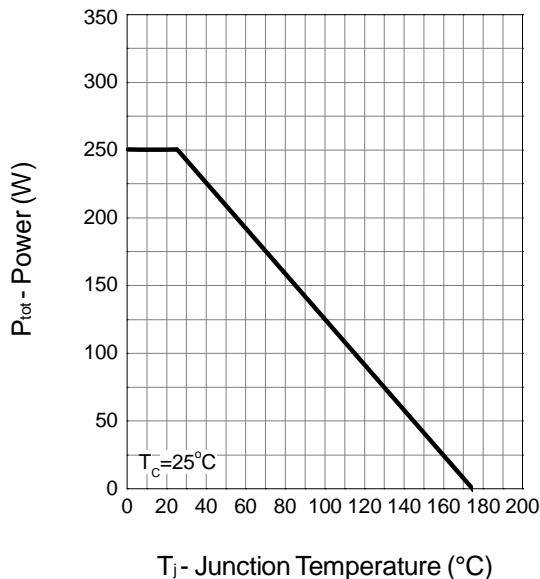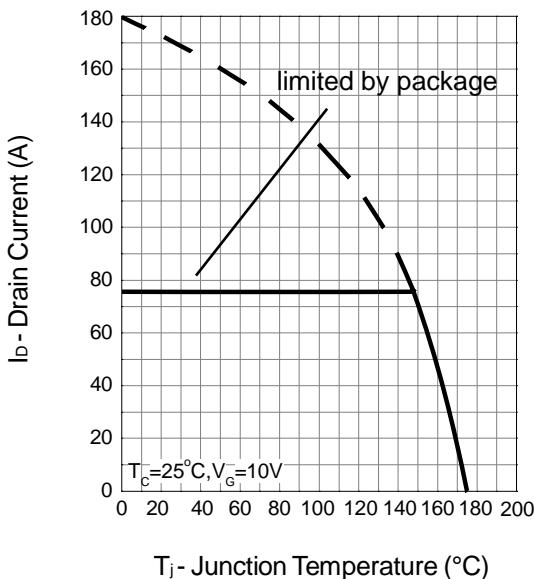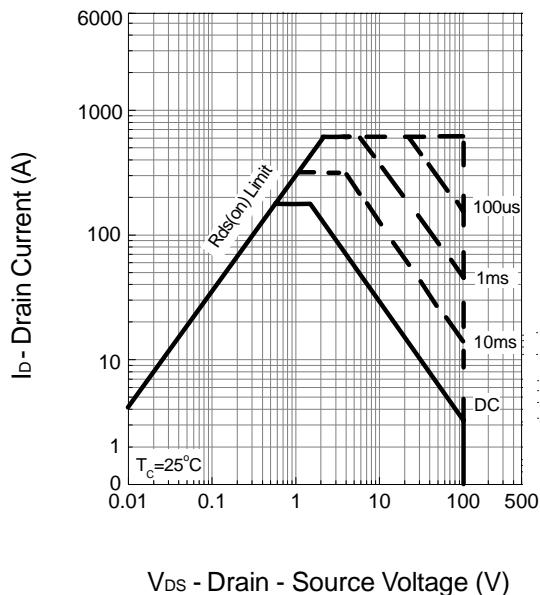
Thermal Transient Impedance
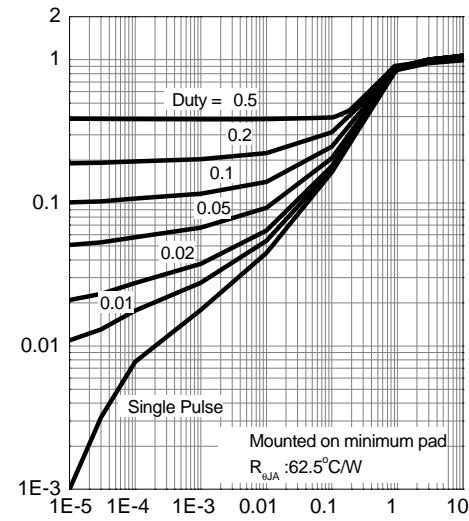
Normalized Effective Transient vs Square Wave Pulse Duration (sec)

Duty = 0.5
0.2
0.1
0.05
0.02
0.01

Single Pulse

Mounted on minimum pad
$R_{\theta JA}$:62.5^{o}C/W

Force mos
Matsuki Electric

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

Typical Characteristics (TJ =25℃ Noted)

Output Characteristics
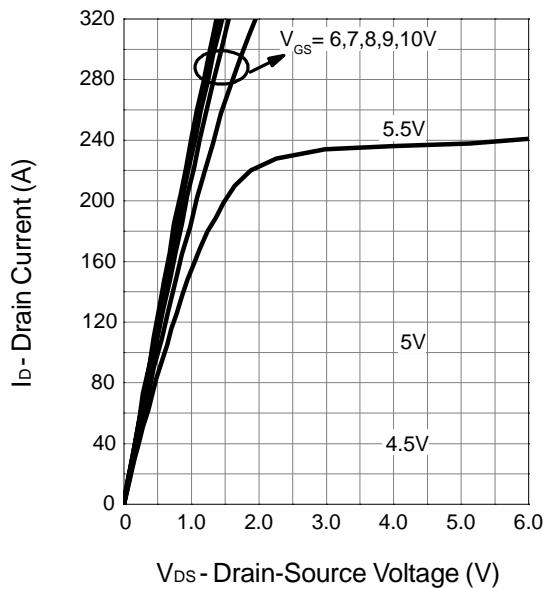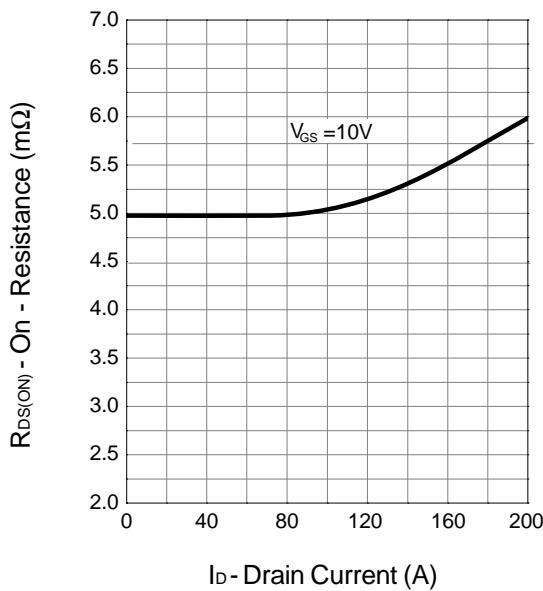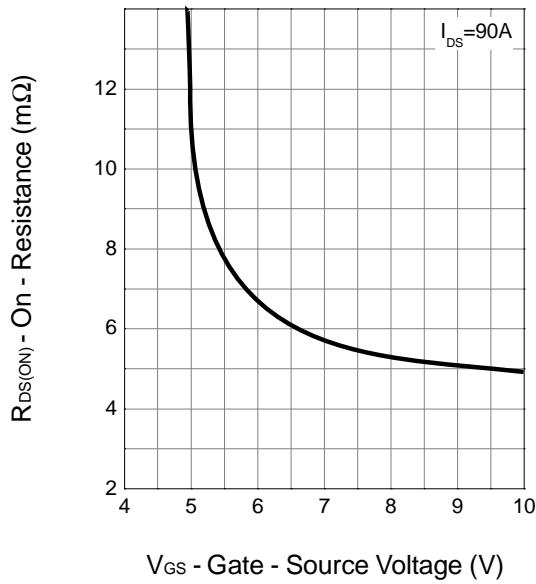
V_{GS}= 6,7,8,9,10V

5.5V

5V

4.5V

I_D - Drain Current (A)

V_{DS} - Drain-Source Voltage (V)

Drain-Source On Resistance

V_{GS} =10V

$R_{DS(ON)}$ - On - Resistance (mΩ)

I_D - Drain Current (A)

Drain-Source On Resistance

I_{DS} =90A

$R_{DS(ON)}$ - On - Resistance (mΩ)

V_{GS} - Gate - Source Voltage (V)

Gate Threshold Voltage

I_{DS} =250µA

Normalized Threshold Vlotage

T_j - Junction Temperature (°C)

Matsuki Electric

Force mos

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

Typical Characteristics (TJ =25℃ Noted)

Drain-Source On Resistance

V_{GS} = 10V
I_{DS} = 90A

Normalized On Resistance

R_{ON}@T_j=25°C: 5.0mΩ

T_j - Junction Temperature (°C)
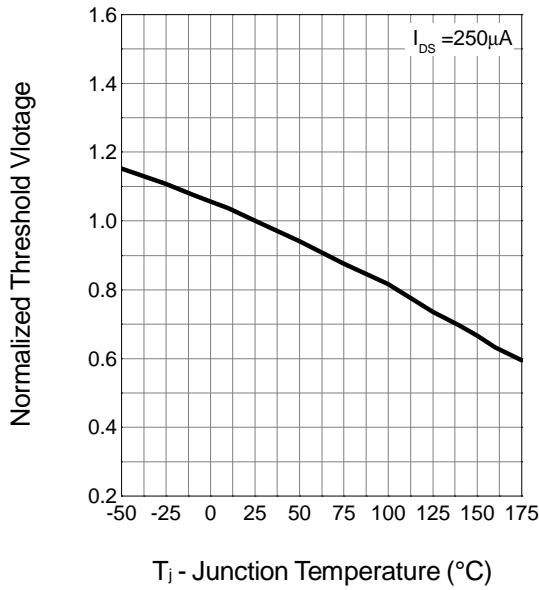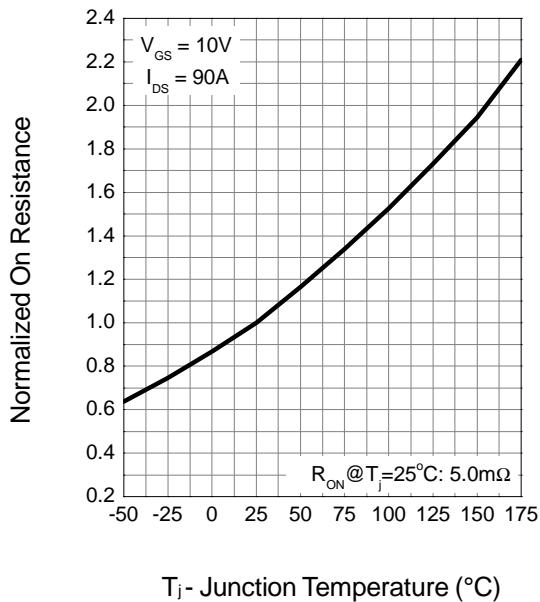
Source-Drain Diode Forward

I_S - Source Current (A)

T_j=175°C

T_j=25°C

V_{SD} - Source-Drain Voltage (V)

Capacitance

Frequency=1MHz

Ciss

C - Capacitance (pF)

Coss

Crss

V_{DS} - Drain - Source Voltage (V)

Gate Charge

V_{DS}= 80V
I_{DS} = 90A

V_{GS} - Gate-source Voltage (V)

Q_G - Gate Charge (nC)

Force mos Matsuki Electric

N-Channel 100-V (D-S) MOSFET
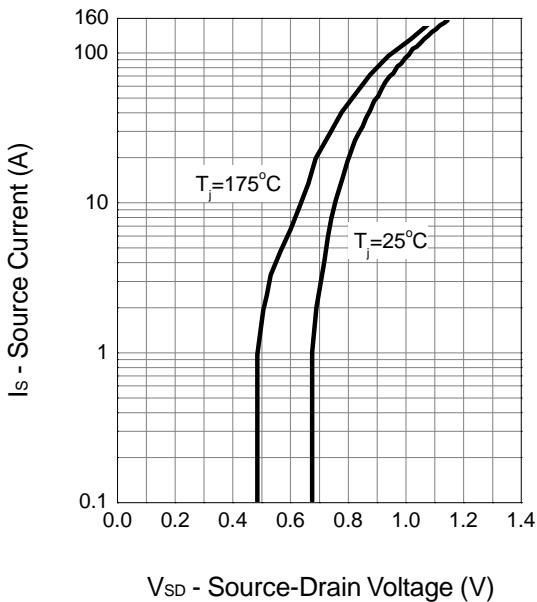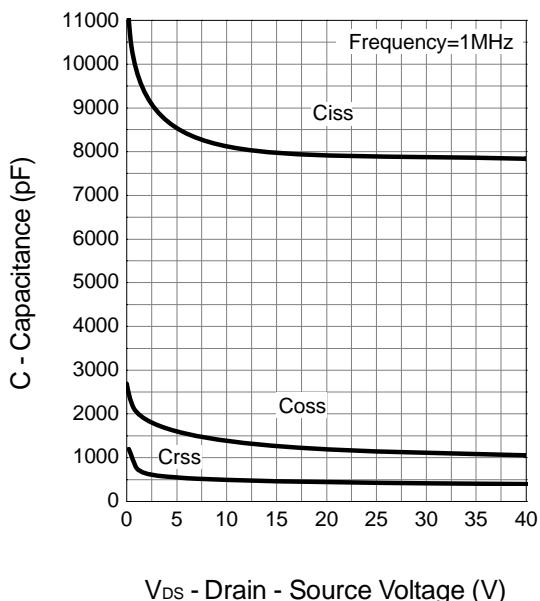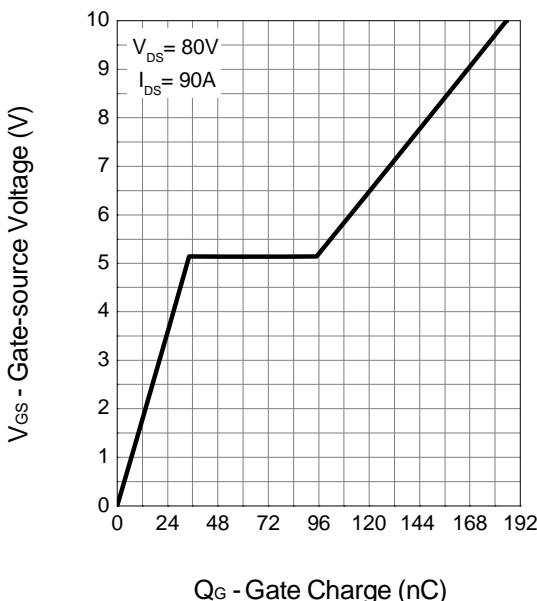
TO-220 Package Outline
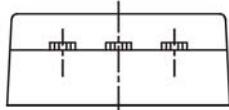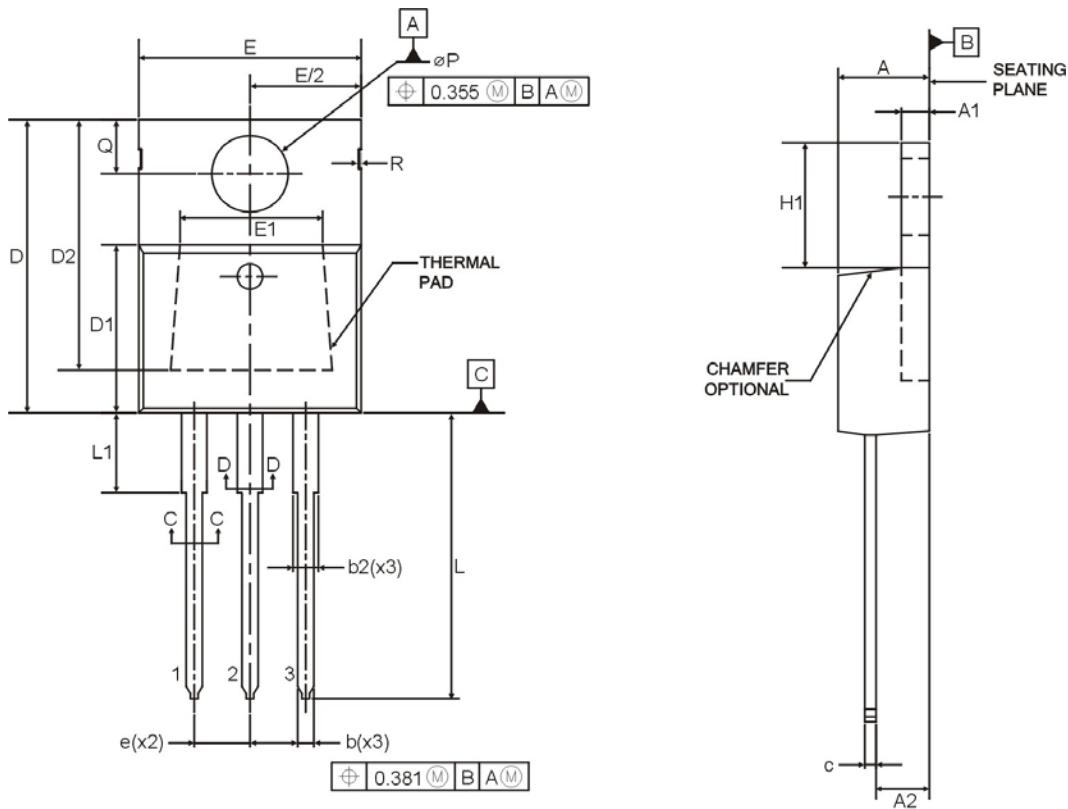
SYMBOL	MILLIMETERS (mm)	
	MIN	**MAX**
A	3.500	4.90
A1	1.000	1.40
A2	2.000	3.00
b	0.500	1.00
c	0.350	0.65
D	14.00	16.50
D1	8.382	9.017
D2	12.00	13.00
E	9.600	10.70
E1	6.858	8.890
e	2.540 BSC	
H1	5.500	7.50
L	12.50	15.00
ØP	3.810	3.860
Q	2.540	3.048
b2	1.100	1.80
L1	-	7.00

Matsuki Electric

Force mos

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET *category:*

Click to view products by MQTSUKI *manufacturer:*

Other Similar products are found below :

614233C 648584F MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ FW216A-TL-2W FW231A-TL-E APT5010JVR NTNS3A92PZT5G IRF100S201 JANTX2N5237 2SK2464-TL-E 2SK3818-DL-E FCA20N60_F109 FDZ595PZ STD6600NT4G FSS804-TL-E 2SJ277-DL-E 2SK1691-DL-E 2SK2545(Q,T) D2294UK 405094E 423220D MCH6646-TL-E TPCC8103,L1Q(CM 367-8430-0972-503 VN1206L 424134F 026935X 051075F SBVS138LT1G 614234A 715780A NTNS3166NZT5G 751625C 873612G IRF7380TRHR IPS70R2K0CEAKMA1 RJK60S3DPP-E0#T2 RJK60S5DPK-M0#T0 APT5010JVFR APT12031JFLL APT12040JVR DMN3404LQ-7 NTE6400 JANTX2N6796U JANTX2N6784U JANTXV2N5416U4 SQM110N05-06L-GE3 SIHF35N60E-GE3