

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

GENERAL DESCRIPTION

The MEE3710T is a N-Channel enhancement mode power field effect transistors, using Force-MOS patented Extended Trench Gate (ETG) technology. This advanced technology is especially tailored to minimize on state resistance and gate charge, and enhance avalanche capability. These devices are particularly suited for medium voltage application such as charger, adapter, notebook computer power management and other lighting dimming powered circuits, and low in-line power loss that are needed in a very small outline surface mount package..

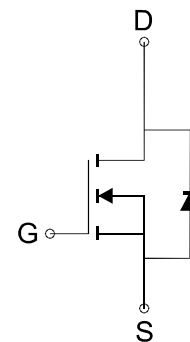
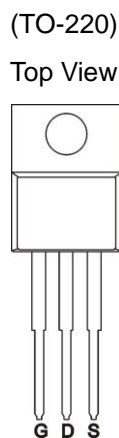
FEATURES

- $R_{DS(ON)} \leq 23m\Omega @ V_{GS}=10V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- Power Management
- Synchronous Rectification
- Load Switch

PIN CONFIGURATION



N-Channel MOSFET

Ordering Information: MEE3710T (Pb-free)

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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current*	I_D	$T_C=25^\circ C$	56
		$T_C=70^\circ C$	45
Single pulse Avalanche Energy L=0.5mH	I_{AS}	21	A
Single pulse Avalanche Energy L=0.5mH	E_{AS}	110	mJ
Pulsed Drain Current	I_{DM}	225	A
Maximum Power Dissipation*	P_D	$T_C=25^\circ C$	155
		$T_C=70^\circ C$	100
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	°C
Thermal Resistance-Junction to Case*	$R_{\theta JC}$	0.8	°C/W

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



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Electrical Characteristics (T_A=25°C Unless Otherwise Specified)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
STATIC						
B _V DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	100			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	2		4	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =28A		19	23	mΩ
V _{SD}	Diode Forward Voltage	I _S =28A, V _{GS} =0V		0.9	1.2	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =80V, V _{GS} =10V, I _D =28A		25		nC
Q _{gs}	Gate-Source Charge			10		
Q _{gd}	Gate-Drain Charge			6		
C _{iss}	Input capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		1728		pF
C _{oss}	Output Capacitance			530		
C _{rss}	Reverse Transfer Capacitance			32		
t _{d(on)}	Turn-On Delay Time	V _{DS} =50V, R _L =1.8Ω V _{GS} =10V, R _G =2.5Ω I _D =28A		22		ns
t _r	Turn-On Rise Time			60		
t _{d(off)}	Turn-Off Delay Time			25		
t _f	Turn-Off Fall Time			16		
T _{rr}	Reverse Recovery Time	I _F =28A, V _{GS} =0V, di/dt=100A/us		40		ns
Q _{rr}	Reverse Recovery Charge			60		nC

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

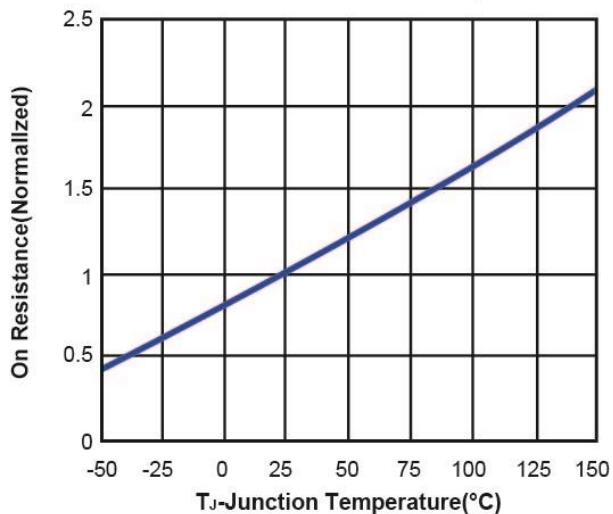
b. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.



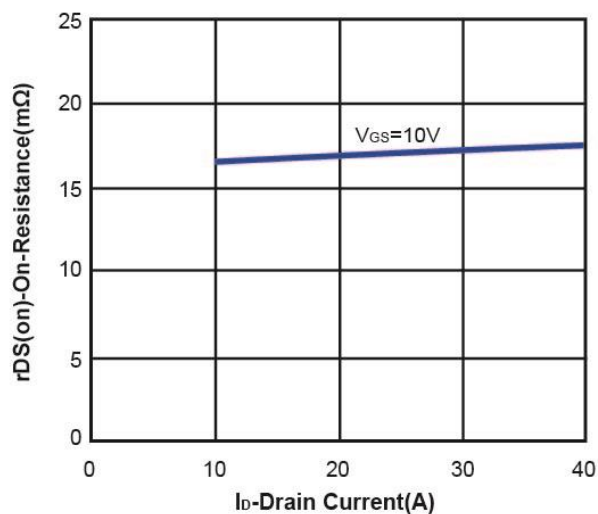
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Typical Characteristics (T_J =25°C Noted)

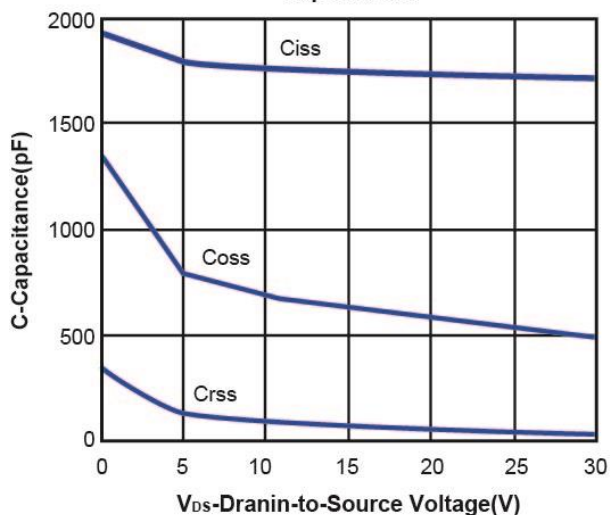
On Resistance vs. Junction Temperature



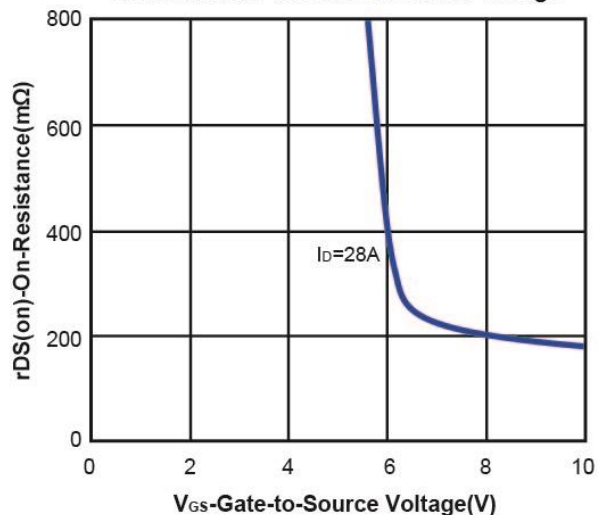
On Resistance vs. Drain Current



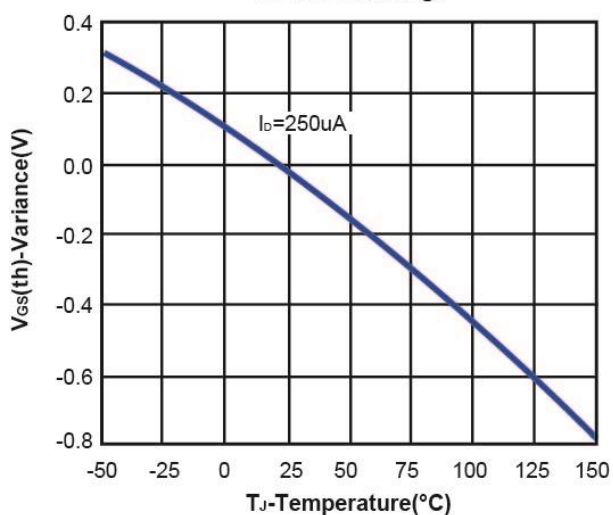
Capacitance



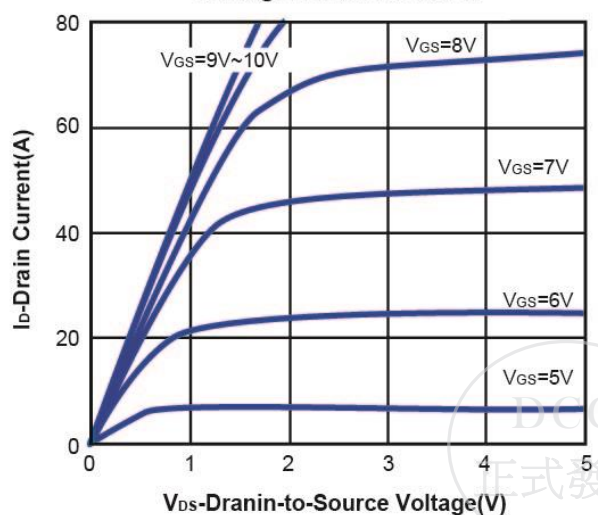
On Resistance vs. Gate-to-Source Voltage



Threshold Voltage

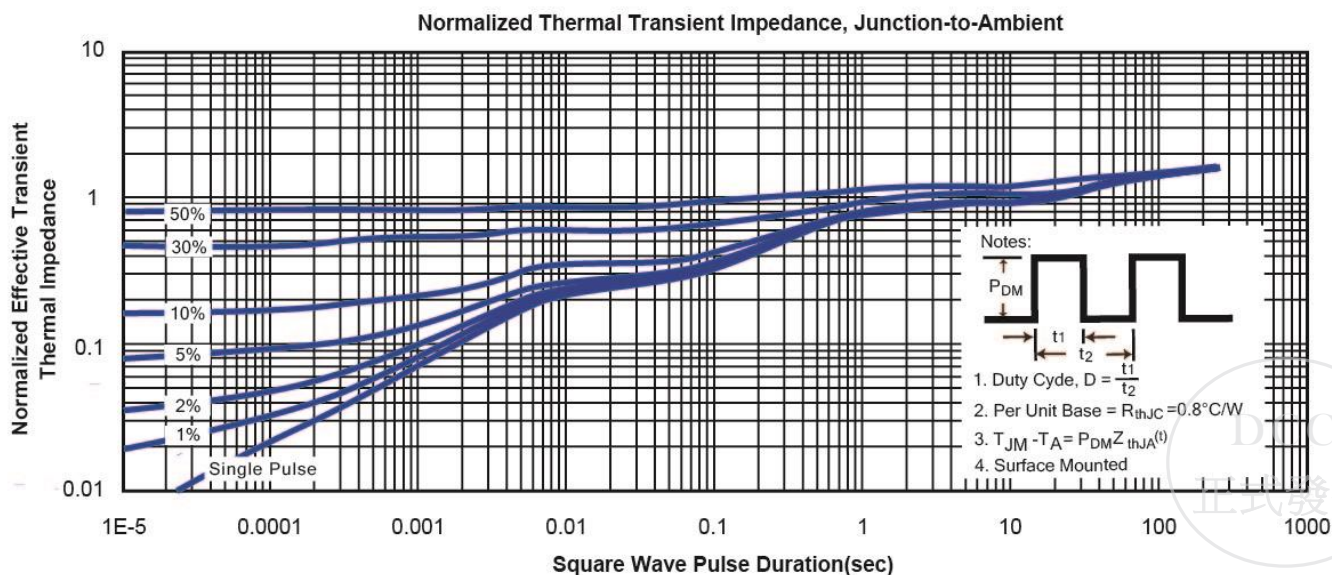
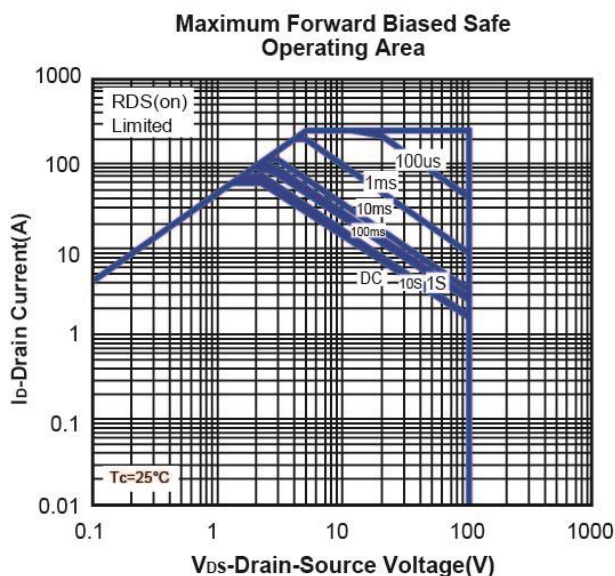
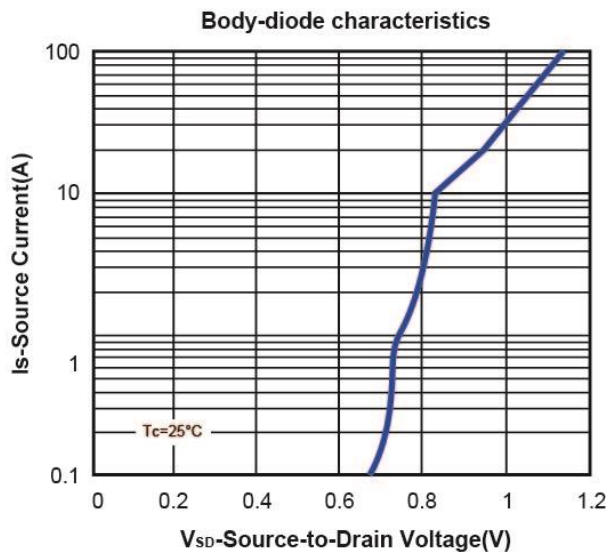
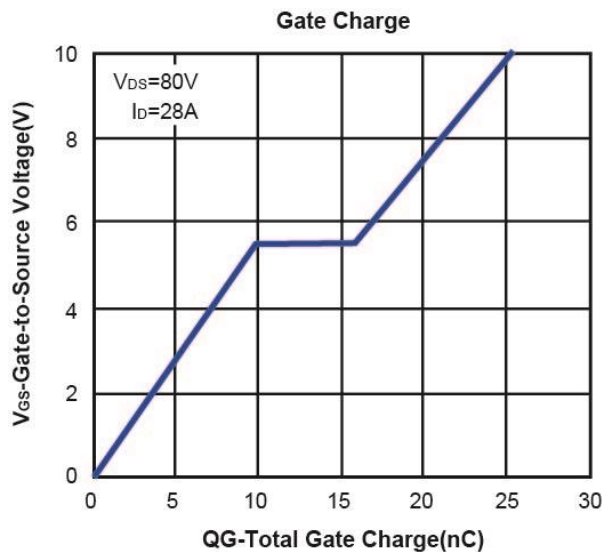


On-Region Characteristics

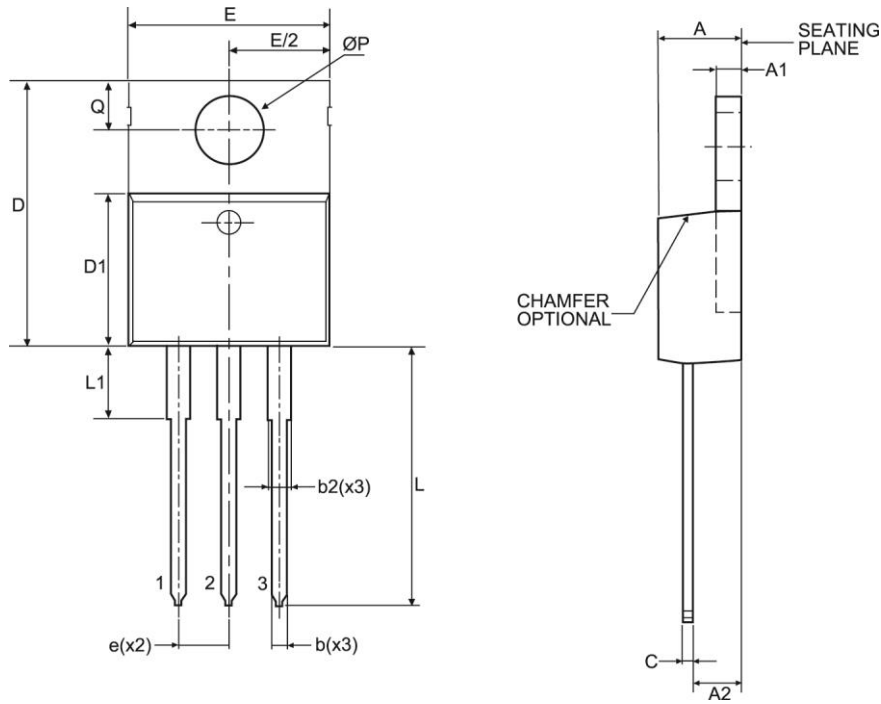


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Typical Characteristics (T_J =25°C Noted)



TO-220 Package Outline



SYMBOL	MILLIMETERS (mm)	
	MIN	MAX
A	3.5	4.9
A1	1	1.5
A2	2	3
b	0.6	1.4
c	0.3	0.7
D	14	16.5
D1	8.3	9.6
E	9.58	10.7
e	2.54BSC	
L	12.5	15
$\varnothing P$	3.6TYP	
Q	2.5	3.1
b2	1	1.8
L1	2.4	3.5

