



THE DATASHEET OF MCU15N10A-TP



Features

- Trench Power MV MOSFET Technology
- Excellent Package For Heat Dissipation
- High Density Cell Design For Low R_{DS(on)}
- Moisture Sensitivity Level 1
- Halogen Free."Green"Device^(Note1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

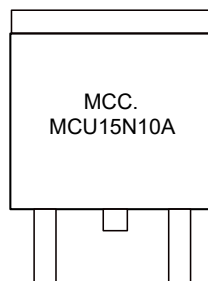
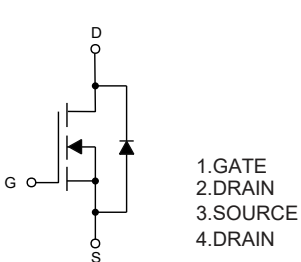
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 50°C/W Junction to Ambient ^(Note2)
- Thermal Resistance: 3°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	T _C =25°C	15
		T _C =100°C	10.6
Pulsed Drain Current ^(Note 3)	I _{DM}	60	A
Single Pulse Avalanche Energy ^(Note 4)	E _{AS}	9	mJ
Total Power Dissipation ^(Note 5)	P _D	50	W

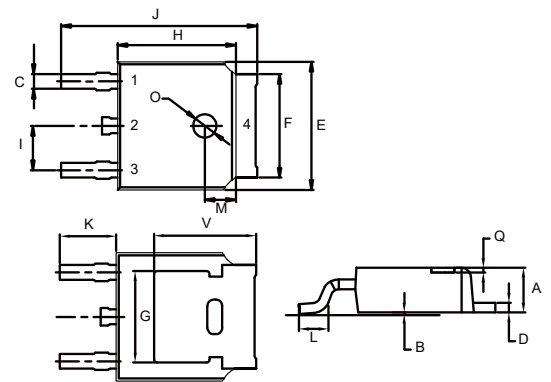
- Note:
- 1.Halogen free"Green"products are defined as those which contain <900ppm bromine,<900ppm chlorine(<1500ppm total Br+Cl) and <1000ppm antimony compounds
 - 2.The value of R_{thJA} is measured with the device mounted on 1 in2 FR-4 board with 2oz.copper, in a still air environment with TA=25°C
 - 3.Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.
 - 4.P_D is based on max. junction temperature, using junction-case thermal resistance.
 - 5.EAS Condition:T_J=25°C,V_{DD}=50V,V_{GS}=10V,L=0.5mH

hYfbU`Gfi Wi fY`UbX`A Uf`_]b[`7 cXY



N-CHANNEL MOSFET

DPAK



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		TYP.
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		TYP.
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		TYP.
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.211		5.35		TYP.

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.1	1.8	3	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=8A$		80	110	m Ω
		$V_{GS}=4.5V, I_D=8A$		85	120	
Gate Resistance	R_G	f=1MHz, Open drain		2		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				15	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=15A$		0.8	1.2	V
Reverse Recovery Time	t_{rr}	$I_F=7.5A, dI_F/dt=100A/\mu s$		33		ns
Reverse Recovery Charge	Q_{rr}			39		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		1122		pF
Output Capacitance	C_{oss}			31		
Reverse Transfer Capacitance	C_{riss}			28		
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_D=10A$		28		nC
Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=50V,$ $V_{GS}=10V, R_G=2.2\Omega,$ $I_D=10A$		6.8		ns
Turn-On Rise Time	t_r			26		
Turn-Off Delay Time	$t_{d(off)}$			26		
Turn-Off Fall Time	t_f			3		

Curve Characteristics

Fig. 1 Typical Output Characteristics

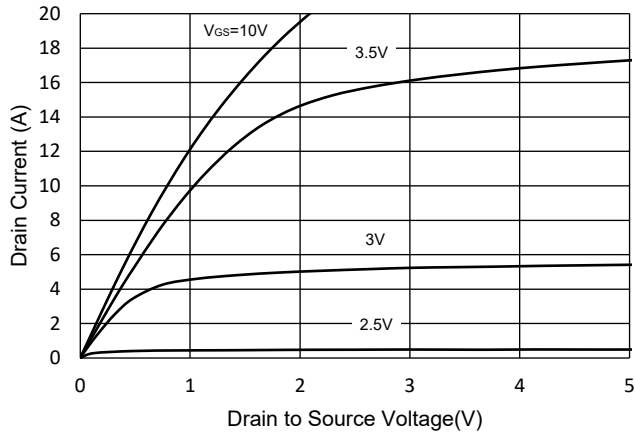


Fig.2 Transfer Characteristic

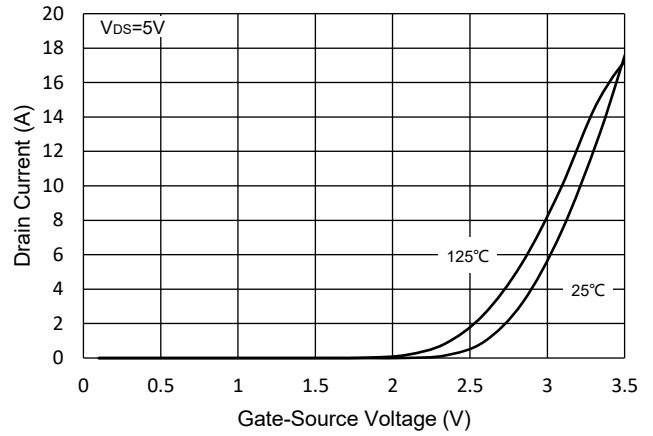


Fig.3 R_{ds(on)}-V_{gs}

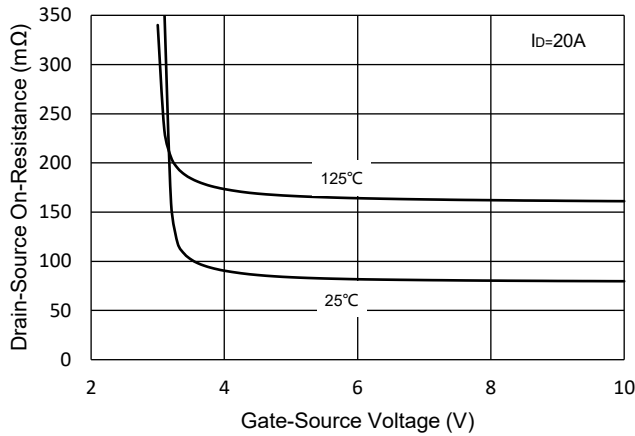


Fig.4 R_{DS(ON)}-I_d

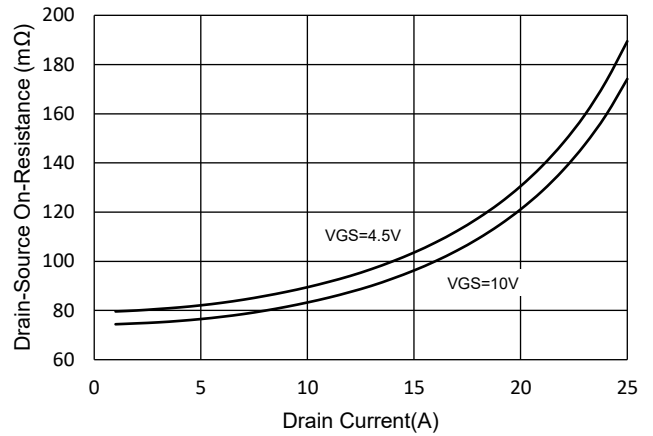


Fig.5 Capacitance Characteristics

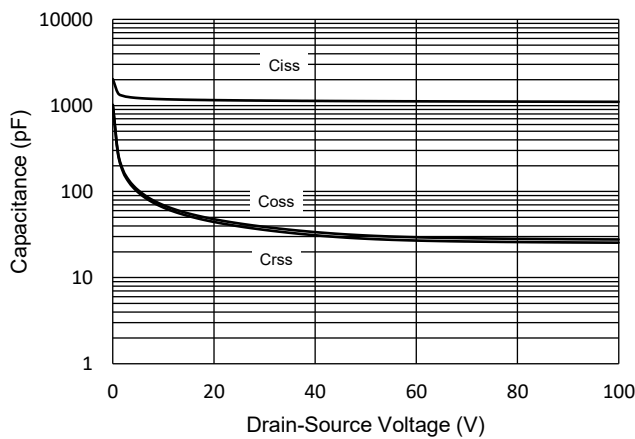
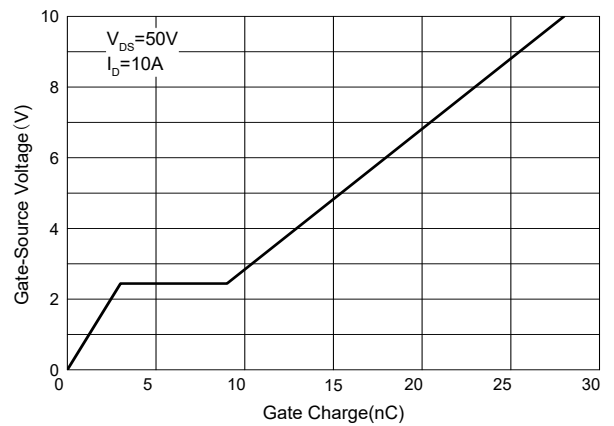


Fig.6 Gate Charge



Curve Characteristics

Fig.7 Normalized Threshold Voltage

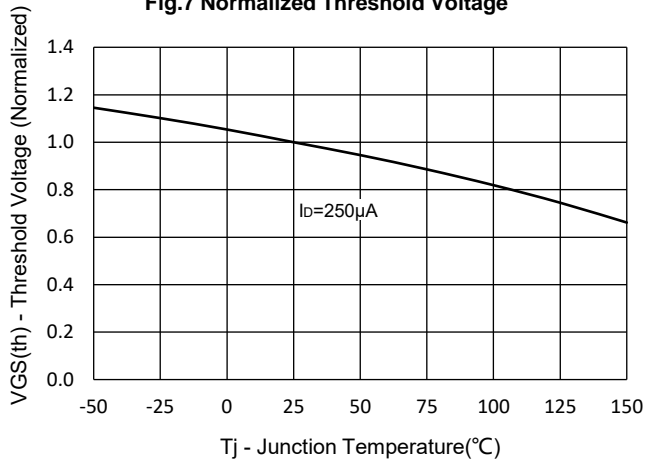


Fig.8 Normalized On Resistance Characteristics

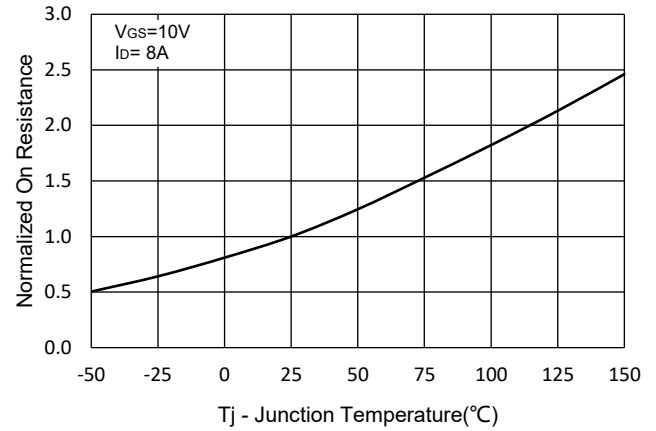


Fig.9 IS-VSD

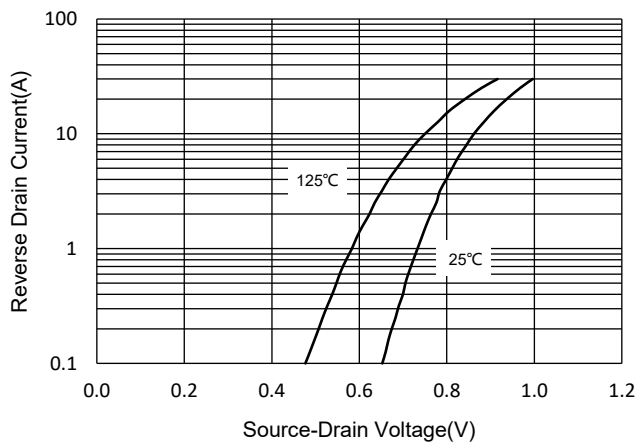


Fig.10 Drain Current

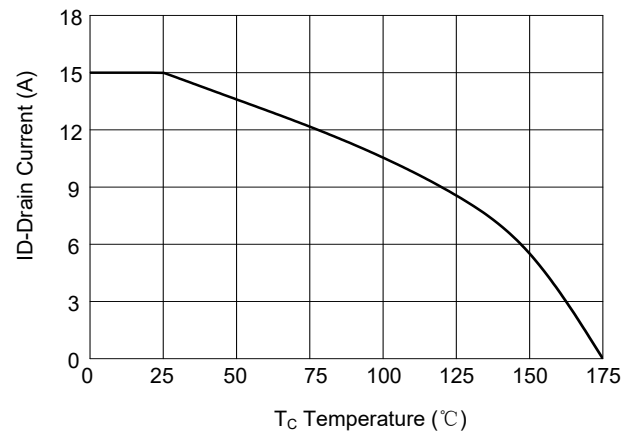
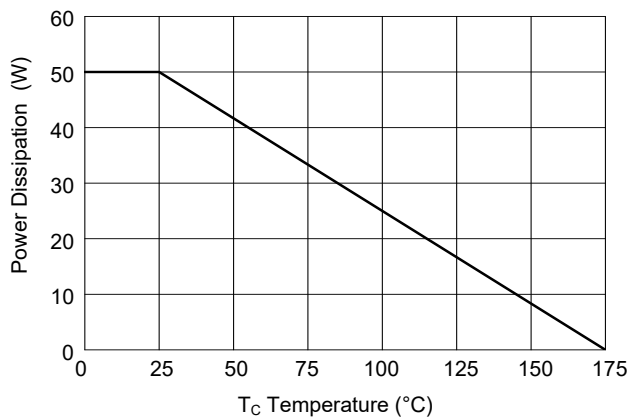


Fig.11 Power Dissipation



Curve Characteristics

Fig.12 Safe Operation Area

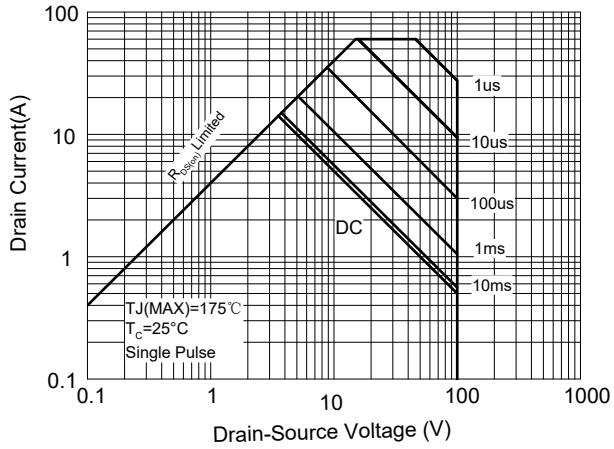
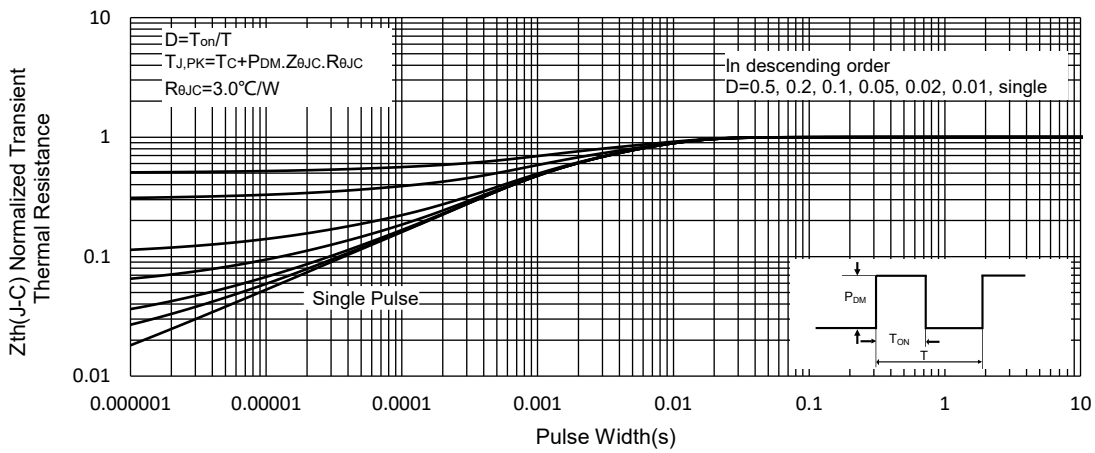


Fig.13 Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

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