THE DATASHEET OF

MCU45P03A-TP

Features

- Trench Power LV MOSFET Technology
- High Density Cell Design for Low $R_{DS(ON)}$
- High Speed Switching
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

P-CHANNEL MOSFET

Maximum Ratings

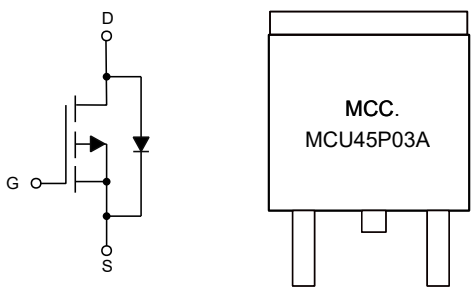
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Ambient(Note 2)
- Thermal Resistance: 2°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Volltage		V_{GS}	±25	V
Continuous Drain Current	T_C=25°C	I_D	-45	A
	T_C=85°C		-32	
Pulsed Drain Current(Note 3)		I_{DM}	-175	A
Total Power Dissipation(Note 4)		P_D	62.5	W
Single Pulsed Avalanche Energy(Note 5)		E_{AS}	256	mJ

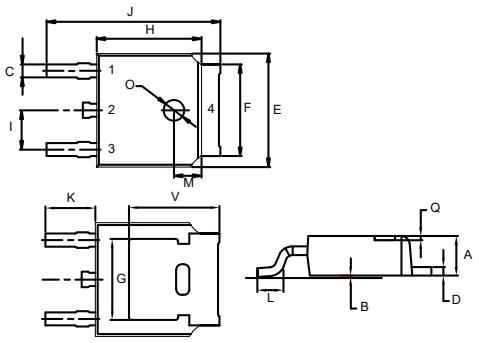
Note:

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 $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-case thermal resistance.
5. T_J=25°C, V_{DD}=-25V, R_G=25Ω, L=0.5mH.

Internal Structure and Marking Code



DPAK(TO-252)



1. Gate
2,4. Drain
3. Source

DIMENSIONS					
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=-250μA	-30			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±25V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1.2	-1.8	-2.8	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-20V, I_D=-20A		4.8	7	mΩ
		V_{GS}=-10V, I_D=-15A		5.5	8	
		V_{GS}=-6V, I_D=-12A		6.5	12	
		V_{GS}=-4.5V, I_D=-12A		8	13	
Gate Resisitance	R_g	f=1MHz, Open drain		3		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				-45	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-20A			-1.2	V
Reverse Recovery Time	t_{rr}	I_S=-15A, dI_F/dt=100A/μs		32.5		ns
Reverse Recovery Charge	Q_{rr}			23		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V,f=1MHz		5091		pF
Output Capacitance	C_{oss}			645		
Reverse Transfer Capacitance	C_{rss}			582		
Total Gate Charge	Q_g	V_{DS}=-15V,V_{GS}=10V,I_D=-15A		90		nC
Gate-Source Charge	Q_{gs}			12		
Gate-Drain Charge	Q_{gd}			19		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-15V, V_{GS}=-10V, R_{GEN}=2.5Ω, I_D=-15A		13.7		ns
Turn-On Rise Time	t_r			28		
Turn-Off Delay Time	$t_{d(off)}$			108		
Turn-Off Fall Time	t_f			56.6		

Curve Characteristics

Fig. 1 Typical Output Characteristics

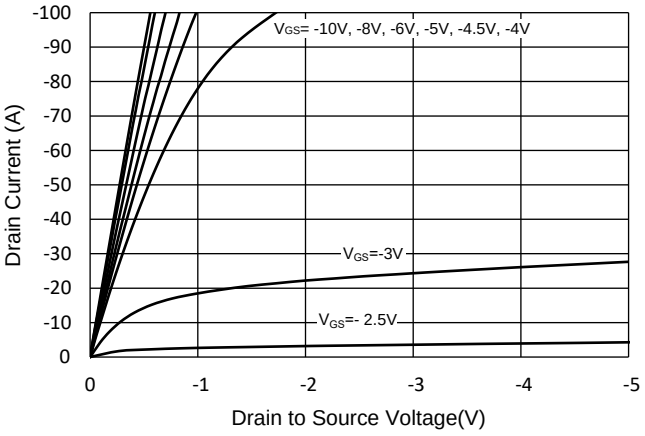


Fig.2 Transfer Characteristic

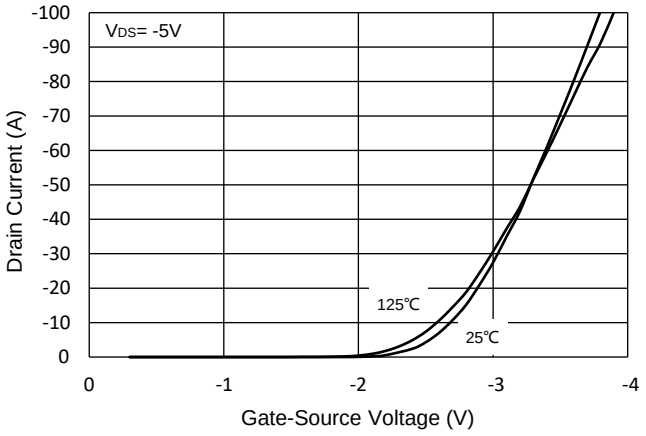


Fig.3 Rdson-Vgs

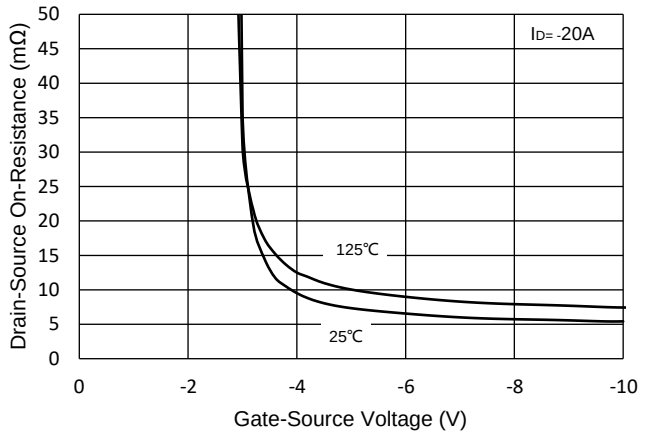


Fig.4 $R_{DS(ON)}$-I_D

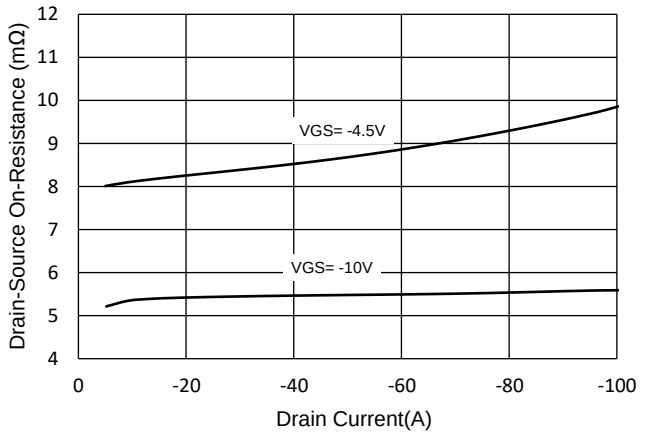


Fig.5 Capacitance Characteristics

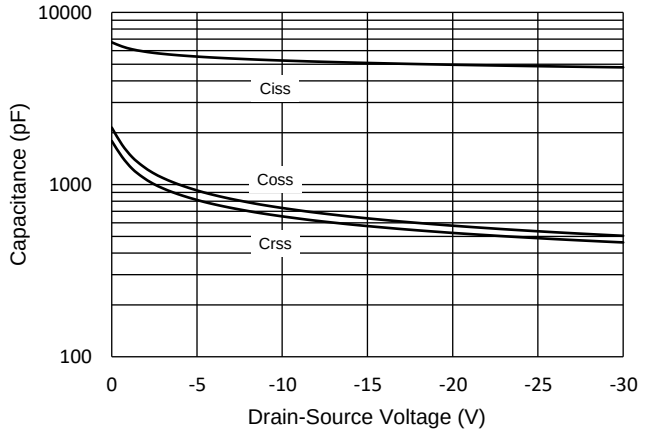
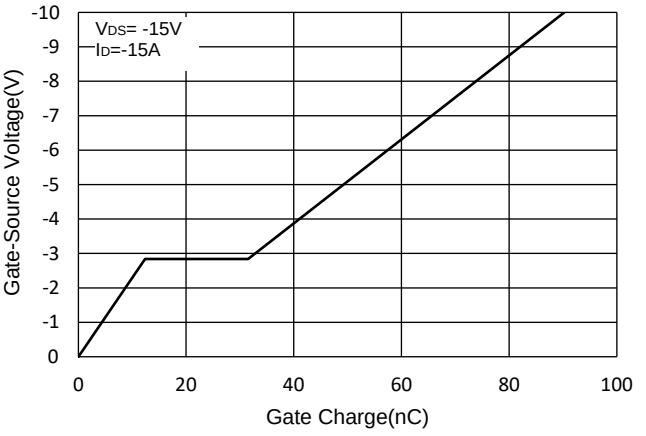


Fig.6 Gate Charge



Curve Characteristics

Fig.7 Normalized Threshold Voltage

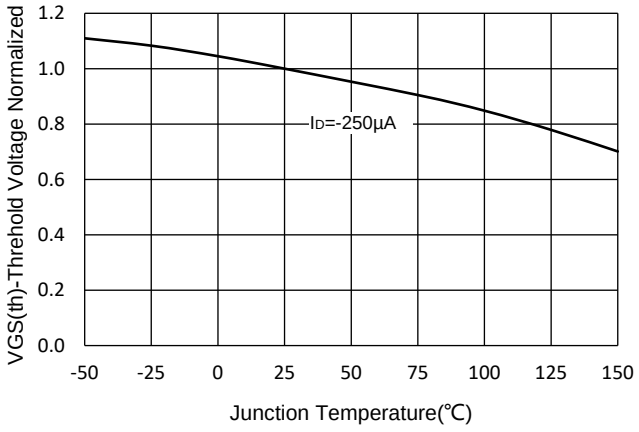


Fig.8 Normalized On Resistance Characteristics

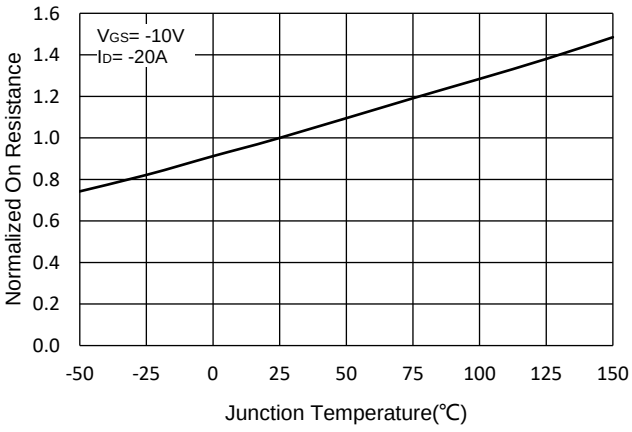


Fig.9 IS-VSD

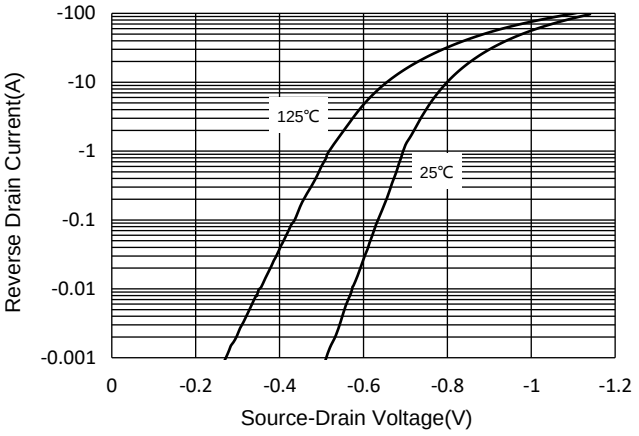


Fig.10 Drain Current

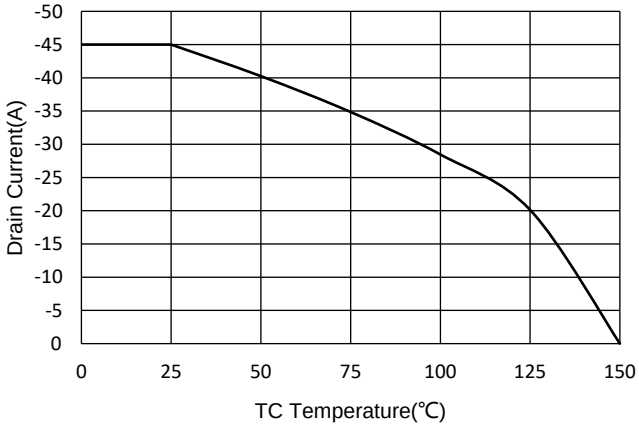
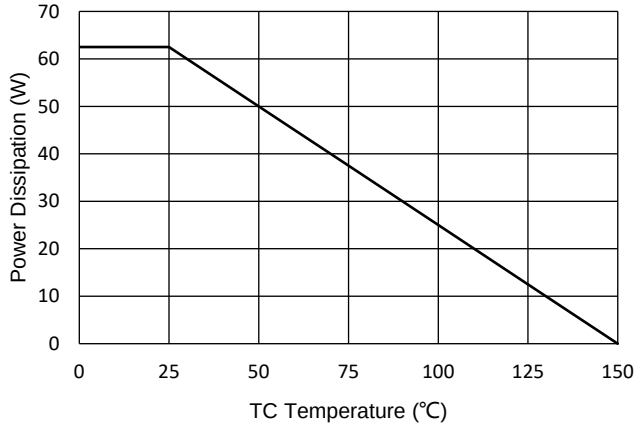


Fig.11 PD Dissipation



Curve Characteristics

Fig.12 Safe Operation Area

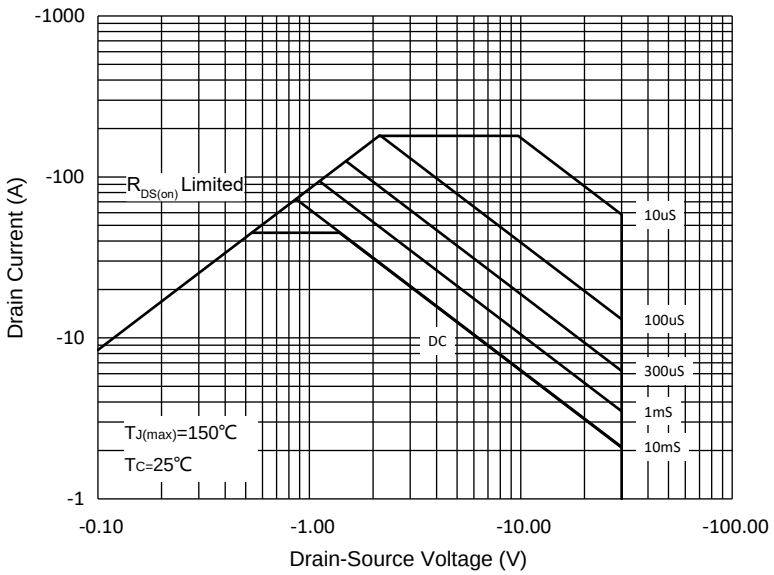
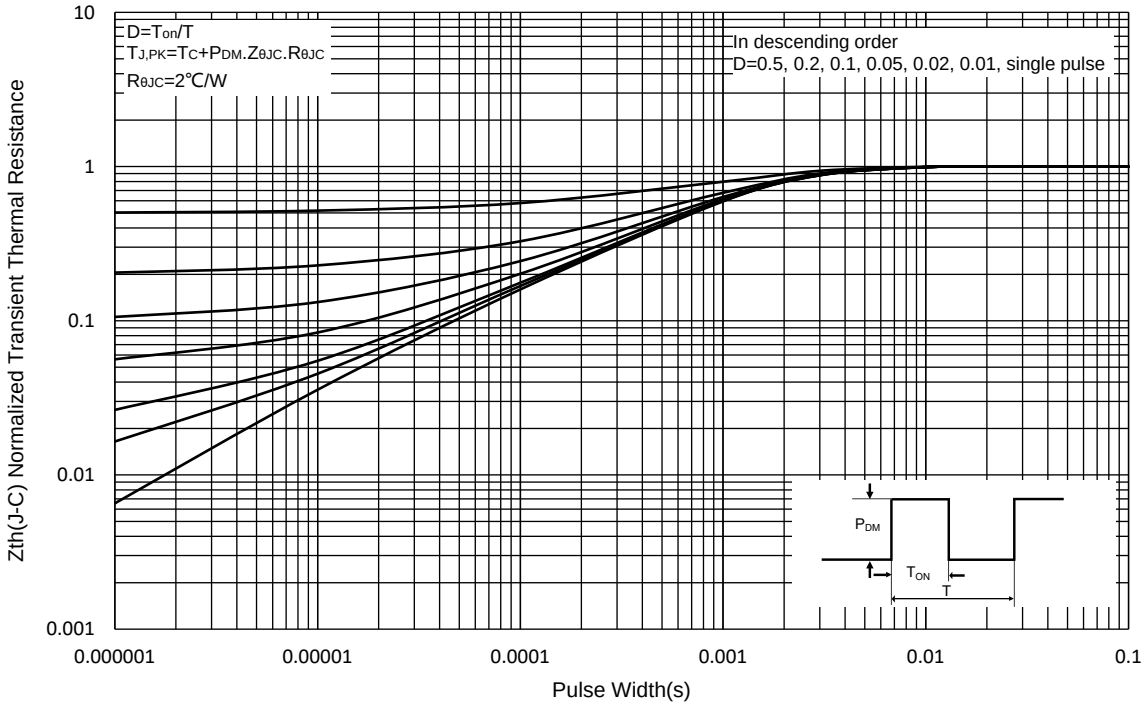


Fig.13 Normalized Transient Thermal Impedance



Ordering Information

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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Micro Commercial Components (MCC):

MCU45P03A-TP

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- View MCU45P03A-TP on WIN SOURCE
- Micro Commercial Co Information

Optimize Your Supply Chain with WIN SOURCE Solutions

- Global Sourcing Solution
- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management