

Features

- Split Gate Trench MOSFET Technology
- Excellent Package for Heat Dissipation
- High Density Cell Design for Low $R_{DS(ON)}$
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 3
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

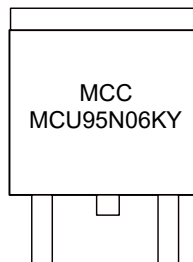
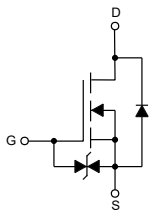
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 71°C/W Junction to Ambient(Steady-State)^(Note2)
- Thermal Resistance: 0.78°C/W Junction to Case(Steady-State)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	95	A
Pulsed Drain Current ^(Note3)	I_{DM}	340	A
Total Power Dissipation	P_D	160	W
Single Pulsed Avalanche Energy ^(Note4)	E_{AS}	256	mJ

Note:

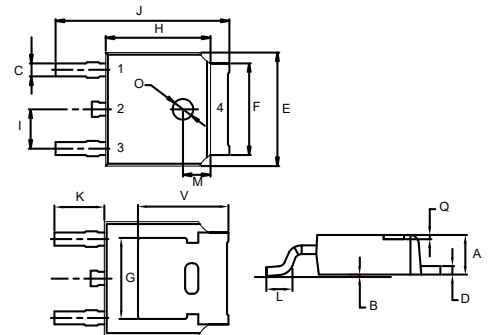
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The Power dissipation P_{DSM} is based on $R_{\theta JA} t \leq 10\text{s}$ and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. $T_J = 25^\circ\text{C}$, $V_{DD} = 50\text{V}$, $L = 0.5\text{mH}$, $I_{AS} = 32\text{A}$

Internal Structure and Marking Code



N-CHANNEL MOSFET

DPAK(TO-252)



1. Gate
- 2,4. Drain
3. Source

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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.6	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		3.2	5.5	m Ω
		$V_{GS}=4.5V, I_D=20A$		4.0	7.0	m Ω
Gate Resistance	R_G	f=1MHz, Open drain		2.0		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				95	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=10A$		0.77	1.3	V
Reverse Recovery Time	t_{rr}	$I_F=20A, dI_F/dt=100A/\mu s$		45.8		ns
Reverse Recovery Charge	Q_{rr}			36.9		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		4159		pF
Output Capacitance	C_{oss}			821		
Reverse Transfer Capacitance	C_{riss}			46		
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=25A$		72.84		nC
Gate-Source Charge	Q_{gs}			15.93		
Gate-Drain Charge	Q_{gd}			10.41		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=30V, V_{GEN}=10V, R_G=2\Omega, I_{DS}=25A$		12.6		ns
Turn-On Rise Time	t_r			46.4		
Turn-Off Delay Time	$t_{d(off)}$			58.8		
Turn-Off Fall Time	t_f			83.2		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

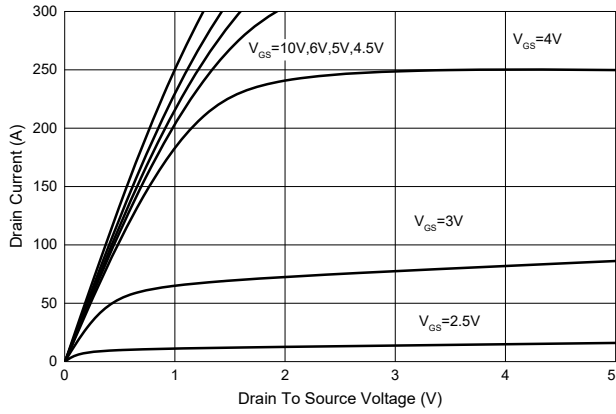


Fig. 2 - Transfer Characteristics

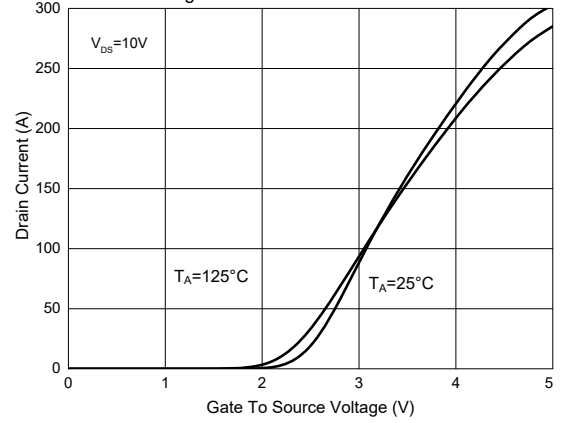


Fig. 3 - $R_{DS(ON)} - I_D$

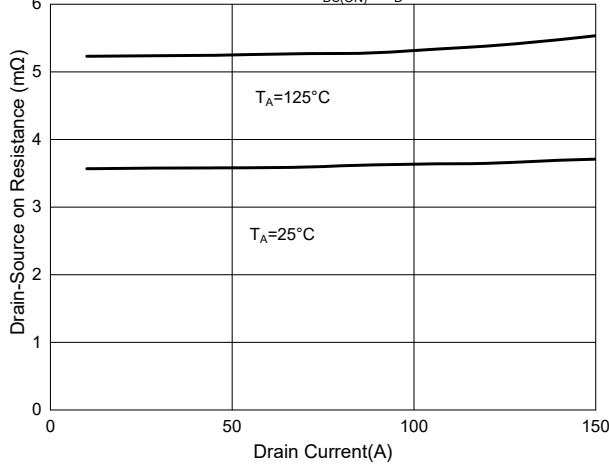


Fig. 4 - $R_{DS(ON)} - V_{GS}$

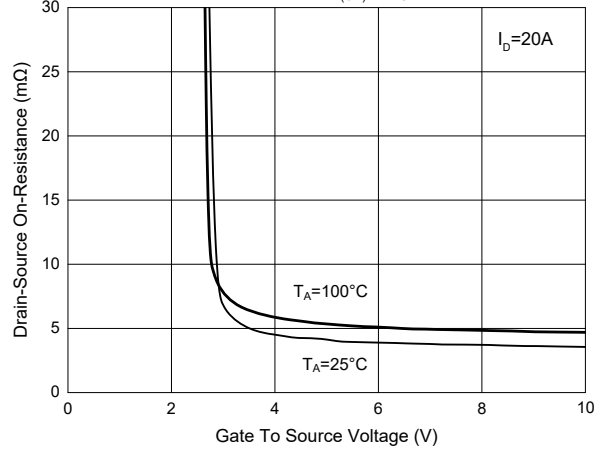


Fig. 5 - Normalized On Resistance Characteristics

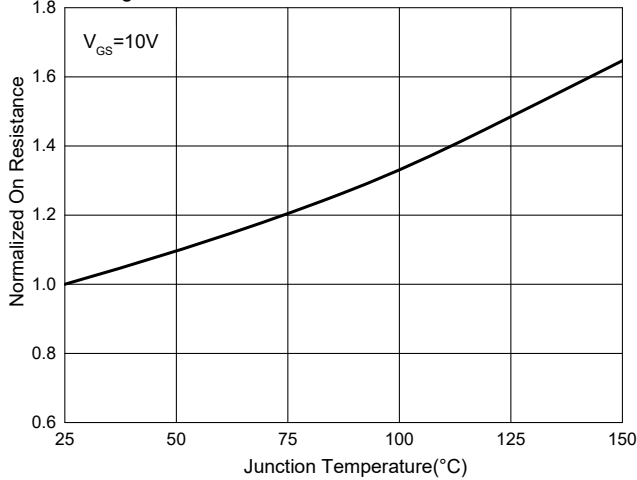
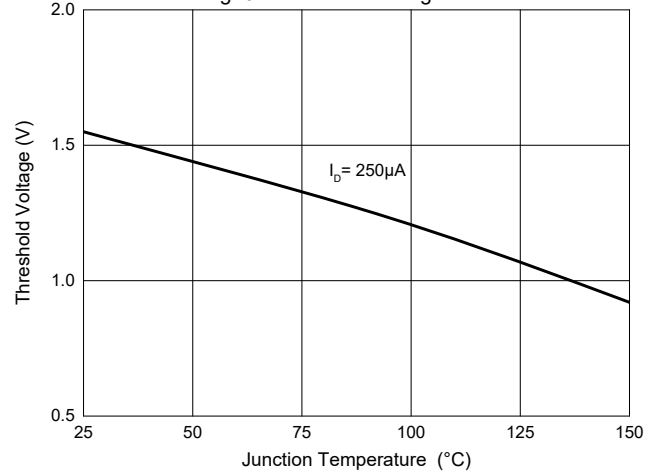
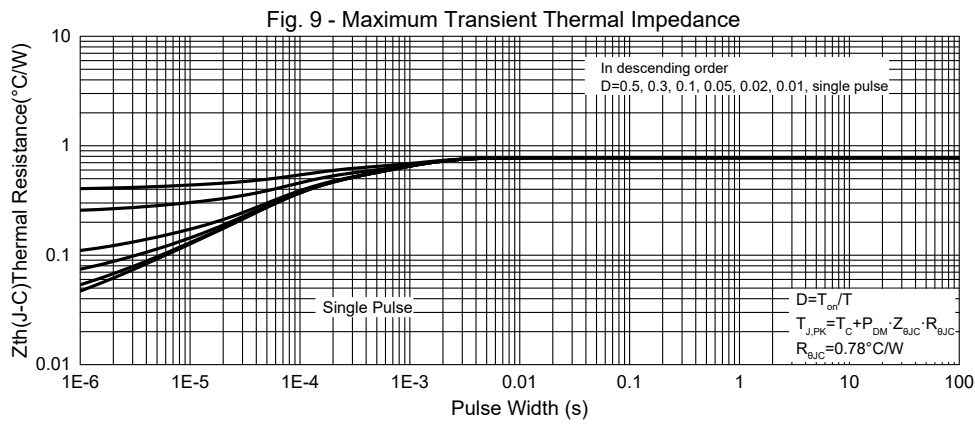
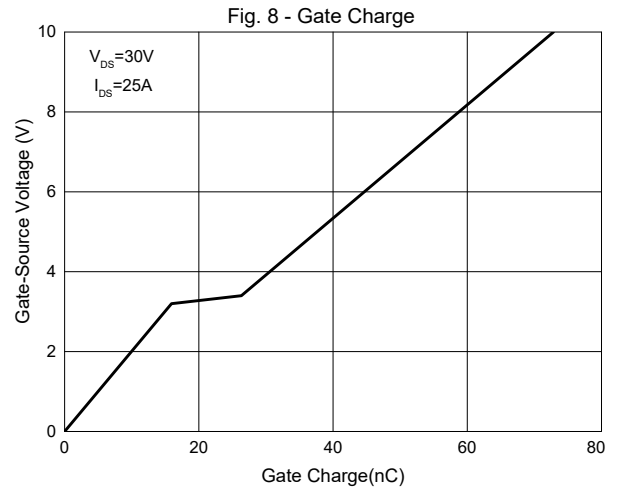
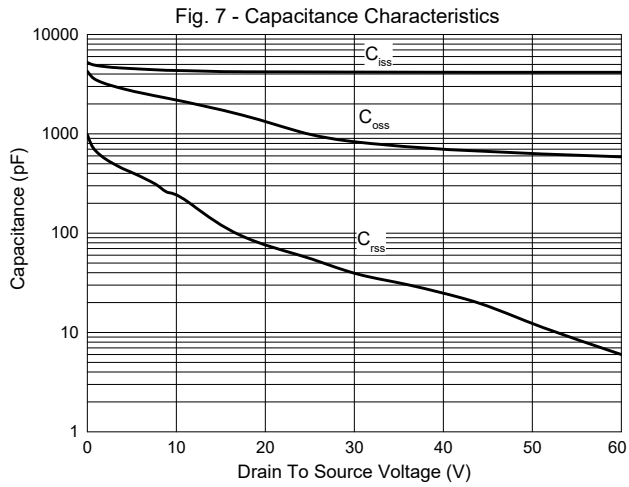


Fig. 6 - Threshold Voltage



Curve Characteristics



Ordering Information

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

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