

Features

- Low On-resistance And Gate Charge.
- 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)

Maximum Ratings

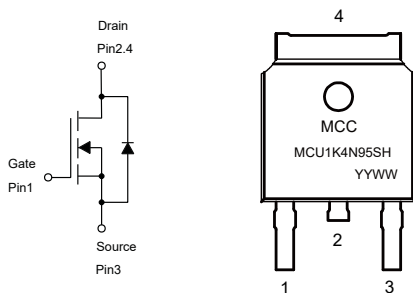
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance Junction to Ambient,Max(Note 2): 50°C/W
- Thermal Resistance Junction to Case,Max : 1.5°C/W

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	950	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	5
		$T_C=100^\circ\text{C}$	3.1
Pulsed Drain Current (Note 3)	I_{DM}	20	A
Total Power Dissipation, $T_C=25^\circ\text{C}$	P_D	83	W
Single Pulsed Avalanche Energy (Note 4)	E_{AS}	66	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. Device mounted on 1 in2 FR-4 board with 2oz. single-sided Copper, in a still air environment with $T_A=25^\circ\text{C}$.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. Starting $T_J=25^\circ\text{C}$, $V_{DD}=50\text{V}$, $I_{AS}=1.3\text{A}$.

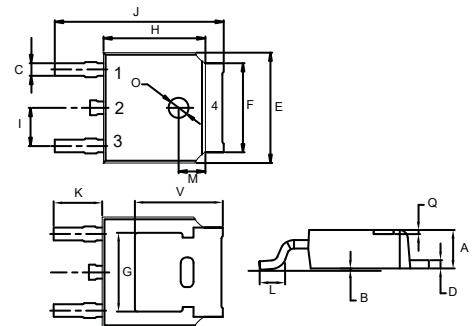
Internal Structure and Marking Code



Device Code: MCU1K4N95SH
Date Code: YYWW (Year & Week)

N-CHANNEL Super-Junction Power MOSFET

DPAK(TO-252)



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	950			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=950V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3.4	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.5A$		1.1	1.49	Ω
Gate Resistance	R_g	f=1 MHz, Open drain		5		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				5	A
Body Diode Voltage	V_{SD}	$I_S=5A, V_{GS}=0V$			1.4	V
Reverse Recovery Time	t_{rr}	$V_R=100V, I_F=5A, di/dt=634A/\mu s$		164		ns
Reverse Recovery Charge	Q_{rr}			2334		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=100V, V_{GS}=0V, f=1MHz$		456		pF
Output Capacitance	C_{oss}			18		
Reverse Transfer Capacitance	C_{rss}			1		
Total Gate Charge	Q_g	$V_{DS}=720V, I_D=5A$ $V_{GS}=10V$		16		nC
Gate-Source Charge	Q_{gs}			2.5		
Gate-Drain Charge	Q_{gd}			9		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=450V, V_{GS}=10V, I_D=5A$ $R_G=2.2\Omega$		22		ns
Turn-On Rise Time	t_r			15		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	t_f			26		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

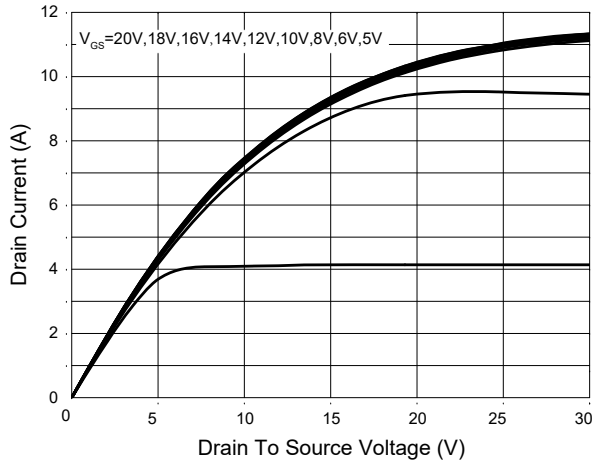


Fig.2 - Transfer Characteristic

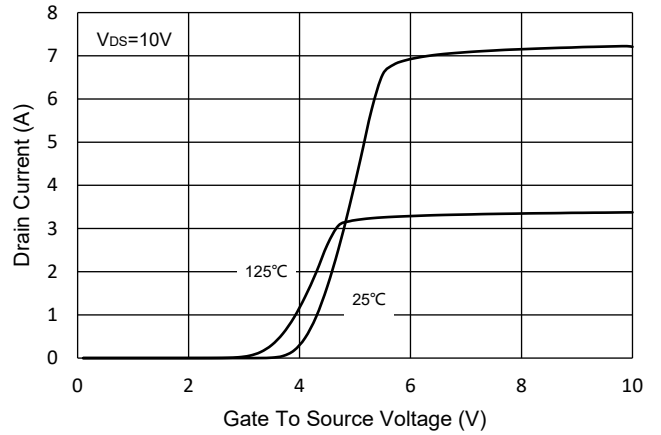


Fig.3 - $R_{DS(ON)} - V_{GS}$

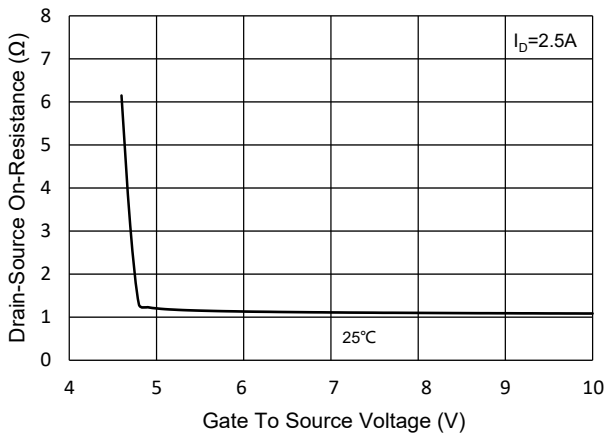


Fig. 4 - $R_{DS(ON)} - I_D$

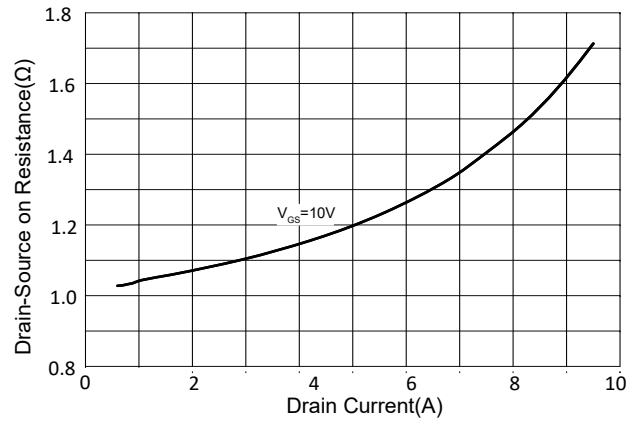


Fig.5 - Capacitance Characteristics

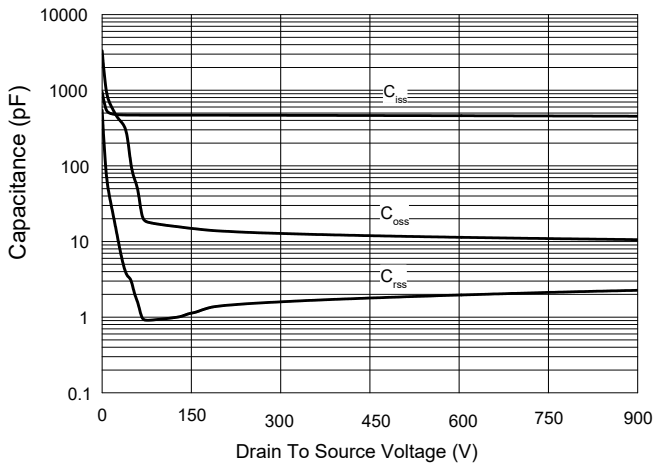
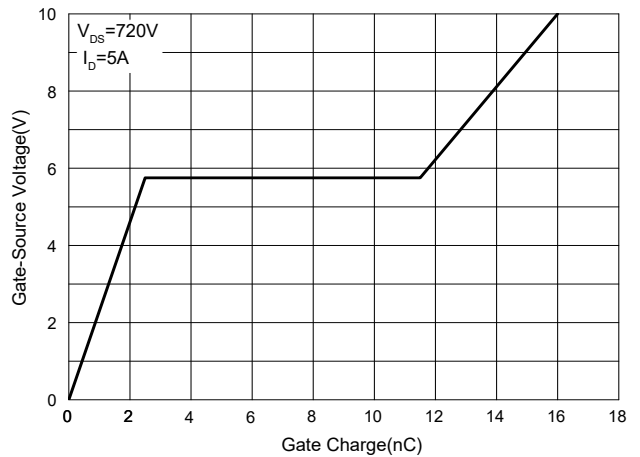


Fig. 6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

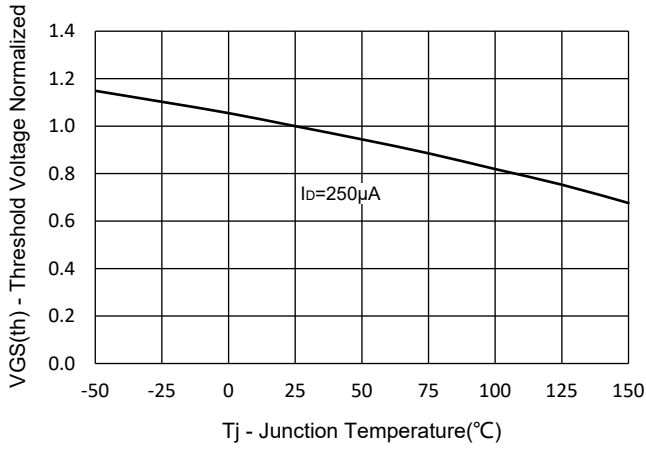


Fig.8 - Normalized On Resistance Characteristics

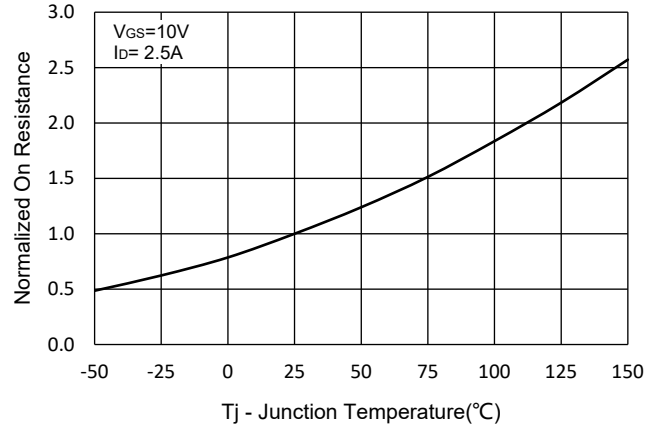


Fig.9 - $I_S - V_{SD}$

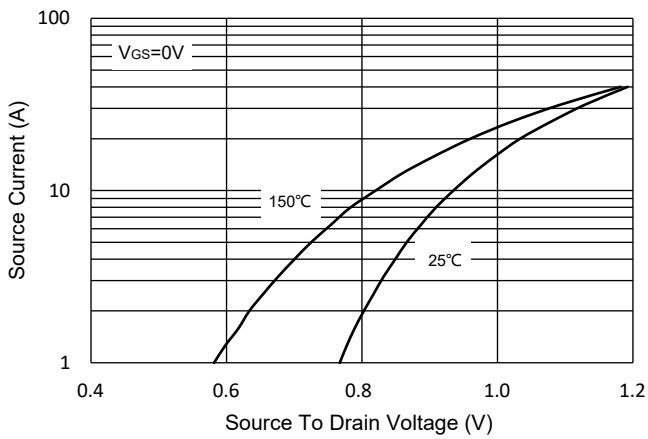


Fig.10 - Drain Current

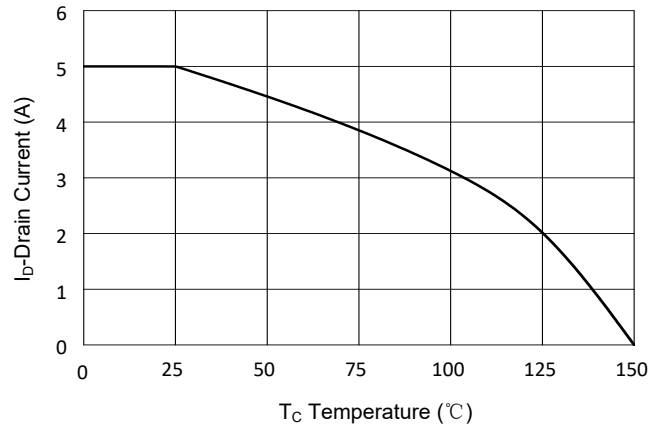
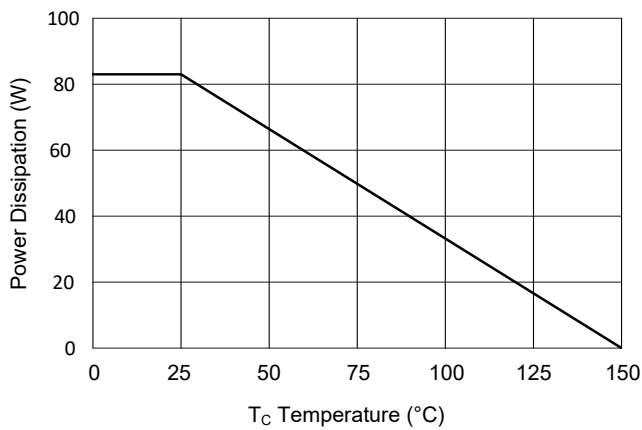


Fig.11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operating Area

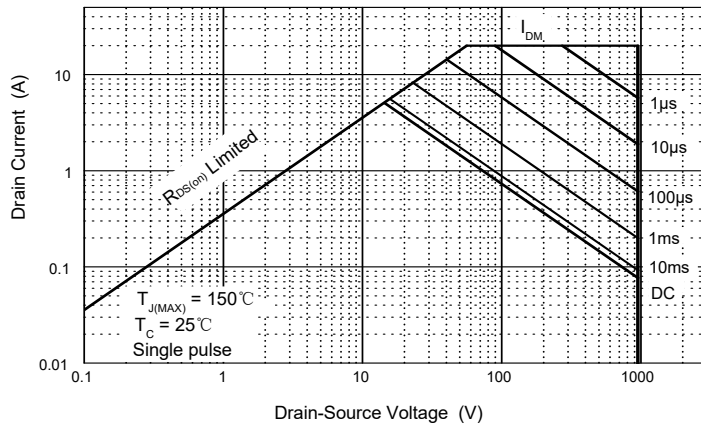
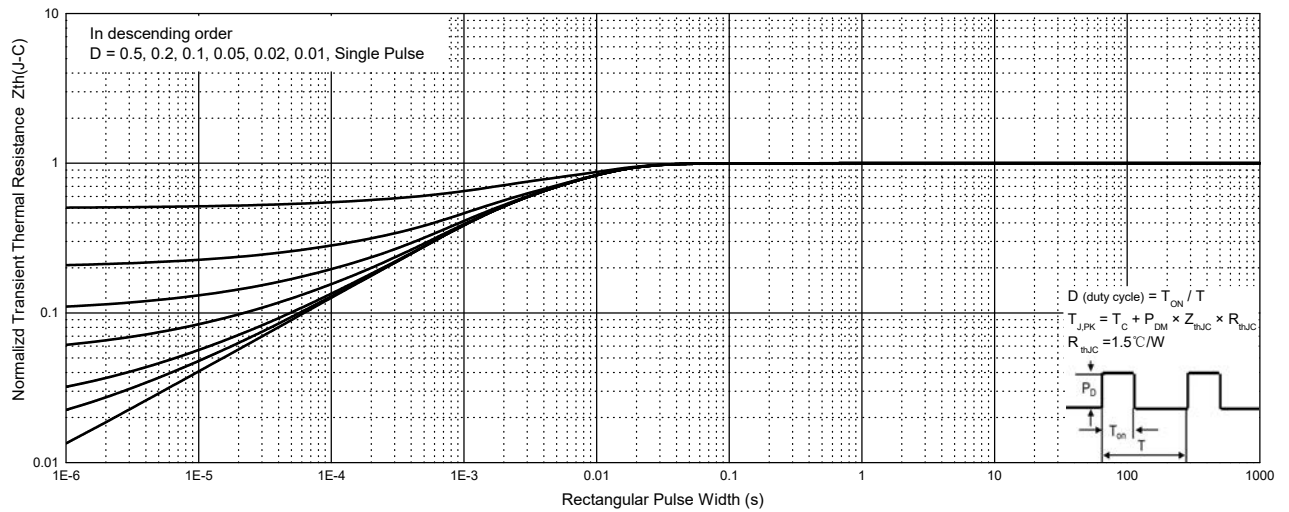


Fig.13 - Normalized Transient Thermal Impedance, Junction-Case



Ordering Information

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

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