Features

- AEC-Q101 Qualified
- Split Gate Trench MOSFET Technology
- High Density Cell Design For Ultra 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)

N-CHANNEL MOSFET

Maximum Ratings

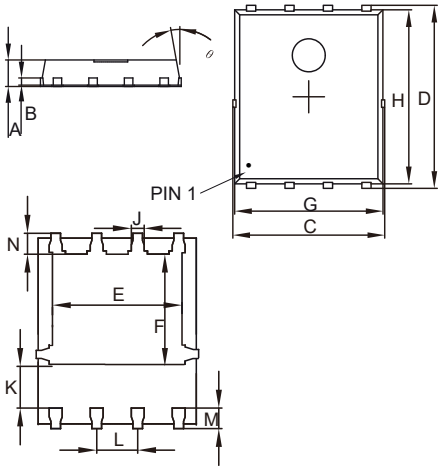
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 50°C/W Junction to Ambient(Note 3)
- Thermal Resistance: 1°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	140	A
	T_C=100°C		99	
Pulsed Drain Current(Note4)		I_{DM}	560	A
Total Power Dissipation (Note 5)		P_D	150	W
Single Pulse Avalanche Energy (Note 6)		E_{AS}	169	mJ

Note:

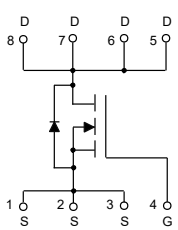
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied,see EU Directive Annex 7a.
3. The value of RθJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C.
4. Repetitive rating; pulse width limited by max. junction temperature.
5. P_D is based on max. junction temperature, using junction-Case thermal resistance.
6. T_J=25℃, V_{DD}=30V, R_G=25Ω, V_{GS}=10V,L=0.5mH.

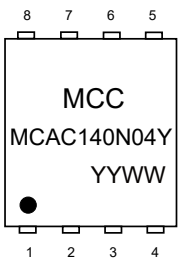
DFN5060



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.031	0.047	0.80	1.20	
B	0.010		0.254		TYP.
C	0.193	0.222	4.90	5.64	
D	0.232	0.250	5.90	6.35	
E	0.148	0.167	3.75	4.25	
F	0.126	0.154	3.20	3.92	
G	0.189	0.213	4.80	5.40	
H	0.222	0.239	5.65	6.06	
K	0.045	0.059	1.15	1.50	
J	0.012	0.020	0.30	0.50	
L	0.046	0.054	1.17	1.37	
M	0.012	0.028	0.30	0.71	
N	0.016	0.028	0.40	0.71	

Internal Structure and Marking Code





4 codes in total
YY is the year
WW is the week

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=1mA	40			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=32V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.0	1.7	3.0	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=50A		1.6	2.0	mΩ
		V_{GS}=4.5V, I_D=20A		2.7	3.9	
Gate Resistance	R_g	V_{GS}=0V, f=1MHz		1.8		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				140	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=50A			1.2	V
Reverse Recovery Time	t_{rr}	I_F=50A, dI_F/dt=220A/μs		24.6		ns
Reverse Recovery Charge	Q_{rr}			12		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V,f=1MHz		2354		pF
Output Capacitance	C_{oss}			1073		
Reverse Transfer Capacitance	C_{rss}			69		
Total Gate Charge	Q_g	V_{DS}=20V,V_{GS}=10V,I_D=50A		45.7		nC
Gate-Source Charge	Q_{gs}			9.7		
Gate-Drain Charge	Q_{gd}			10.4		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=20V, V_{GS}=10V, I_{DS}=40A,Rg= 3Ω		12.3		ns
Turn-On Rise Time	t_r			110		
Turn-Off Delay Time	$t_{d(off)}$			36.8		
Turn-Off Fall Time	t_f			22		

Curve Characteristics

Fig.1 - Typical Output Characteristics

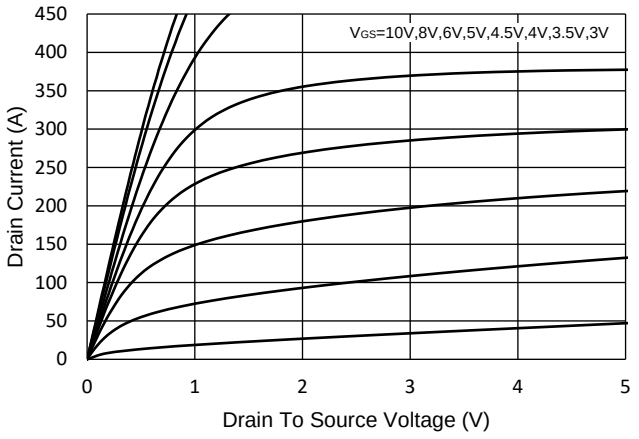


Fig.2 - Transfer Characteristics

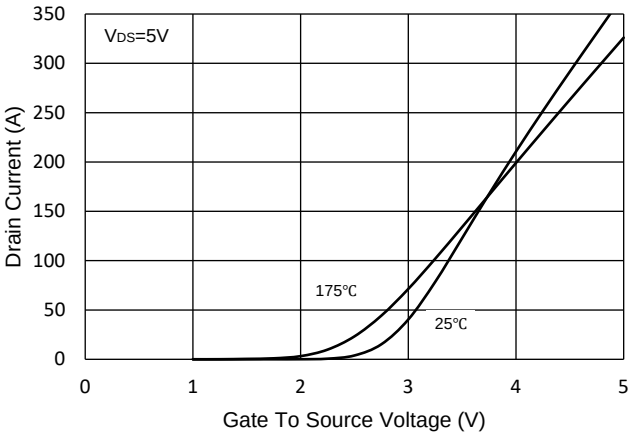


Fig.3 - $R_{DS(ON)}$ - V_{GS}

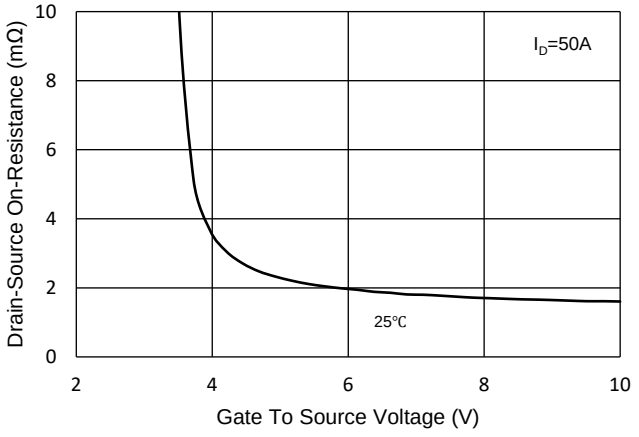


Fig.4 - $R_{DS(ON)}$ - I_D

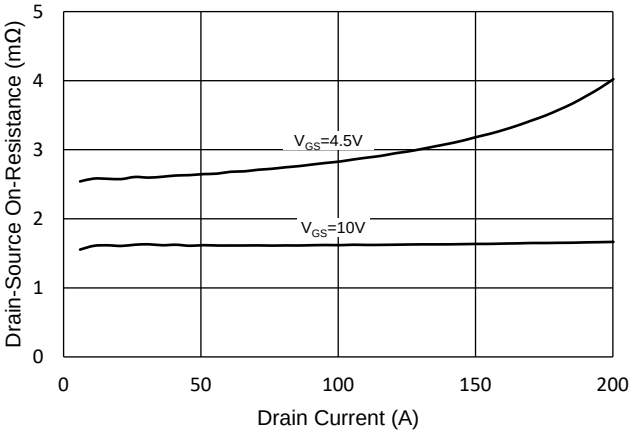


Fig.5 - Capacitance Characteristics

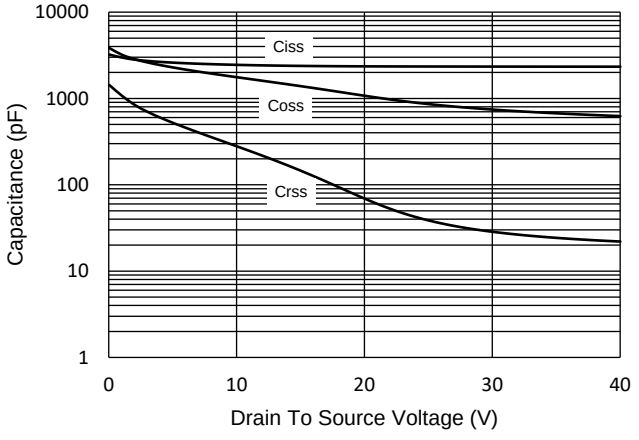
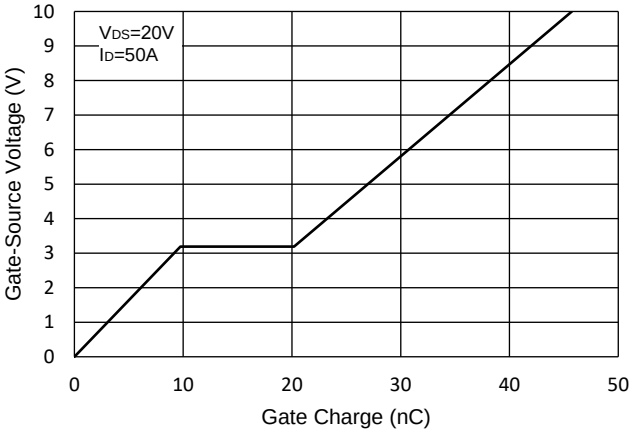


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

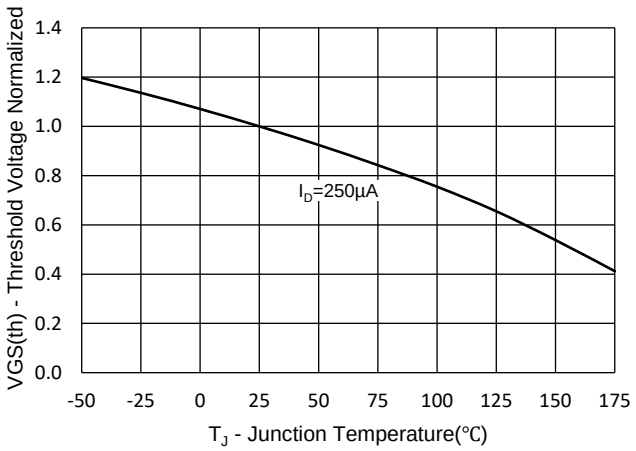


Fig.8 - Normalized On Resistance Characteristics

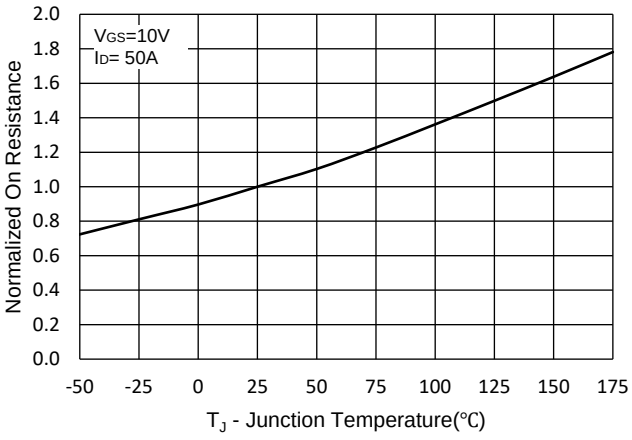


Fig.9 - I_S - V_{SD}

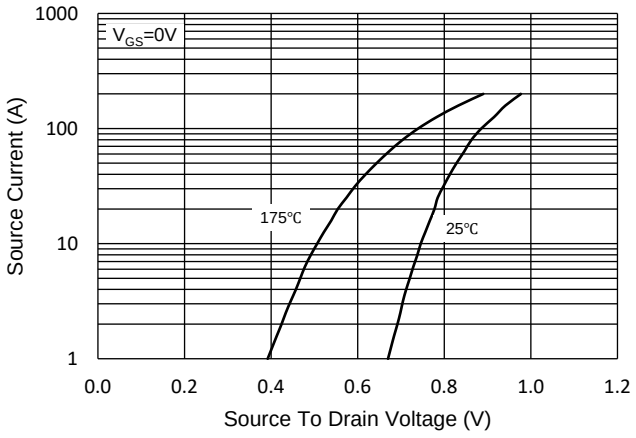


Fig.10 - Drain Current

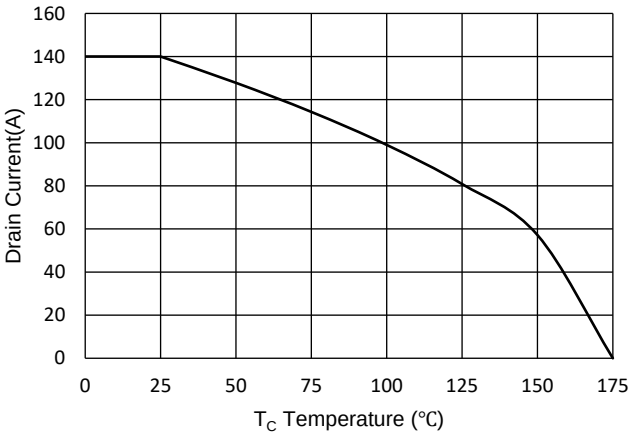
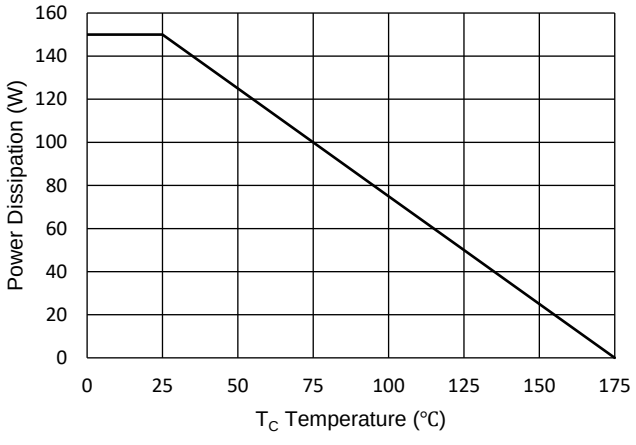


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

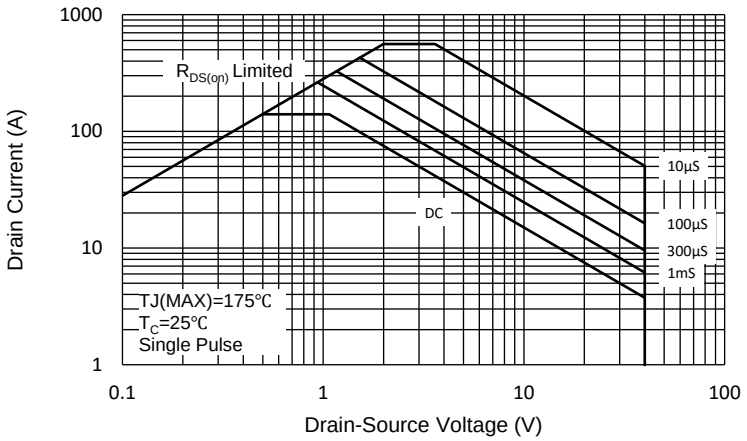
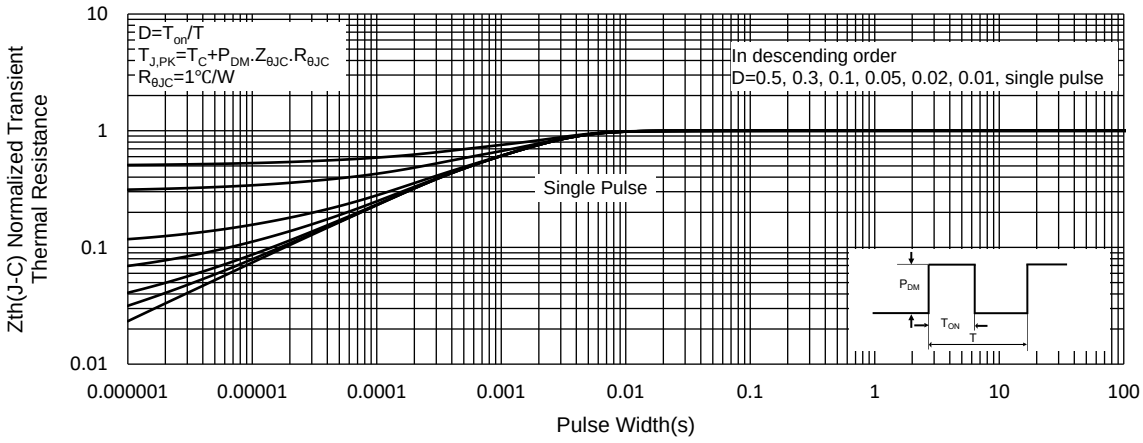


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 5Kpcs/Reel