



**THE DATASHEET OF
MCG25P06Y-TP**



Features

- Split Gate Trench MOSFET Technology
- Low $R_{DS(on)}$ & FOM
- Low C_{rss}
- Extremely Low Switching Loss
- Excellent Stability and Uniformity
- 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)
- Moisture Sensitivity Level 1

Maximum Ratings

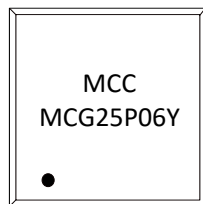
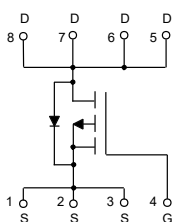
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance:50°C/W Junction to Ambient(Steady-State)⁽²⁾
- Thermal Resistance:1.7°C/W Junction to Case(Steady-State)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	$T_C=25^\circ C$	-25
		$T_C=100^\circ C$	-15.8
Pulsed Drain Current ⁽³⁾	I_{DM}	-75	A
Total Power Dissipation ⁽⁴⁾	P_D	73.5	W
Single Pulsed Avalanche Energy ⁽⁵⁾	E_{AS}	81	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 $T_A = 25^\circ C$. The Power dissipation P_{DSM} is based on $R_{\theta JA} t \leq 10s$ 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. P_D is based on max. junction temperature, using junction-case thermal resistance.
5. $V_{DD}=-50V, R_G=25\Omega, L=0.5mH, I_{AS}=-18A$

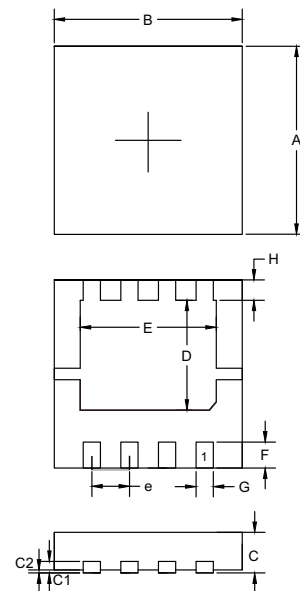
Internal Structure and Marking Code



pin1

P-CHANNEL MOSFET

DFN3333



DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.70	0.75	17.8	19.0	
B	0.70	0.75	17.8	19.0	
C	0.05	0.08	1.27	2.03	
ØF	0.05	0.09	1.27	2.29	
ØG	0.15	0.20	3.81	5.08	
Ø	0.15	0.20	3.81	5.08	
Ø	0.15	0.20	3.81	5.08	0.10
Ø	0.15	0.20	3.81	5.08	
P	0.016	0.020	0.41	0.51	
^	0.024	0.028	0.61	0.71	

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}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V$			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.5	-2.1	-2.7	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-20A$		38	50	m Ω
		$V_{GS}=-4.5V, I_D=-10A$		48	65	
Gate Resistance	R_g	F=1 MHz, Open drain		12		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				-25	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-20A$		-0.95	-1.3	V
Reverse Recovery Time	t_{rr}	$I_F=-20A, dI_F/dt=100A/\mu s$		28.3		ns
Reverse Recovery Charge	Q_{rr}			20.2		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V, f=1MHz$		1024		pF
Output Capacitance	C_{oss}			386		
Reverse Transfer Capacitance	C_{rss}			22		
Total Gate Charge	Q_g	$V_{DS}=-30V, V_{GS}=-10V, I_D=-20A$		17.4		nC
Gate-Source Charge	Q_{gs}			3.83		
Gate-Drain Charge	Q_{gd}			2.94		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-30V, V_{GS}=-10V, R_{GEN}=6\Omega$		7.9		ns
Turn-On Rise Time	t_r			4.63		
Turn-Off Delay Time	$t_{d(off)}$			42.4		
Turn-Off Fall Time	t_f			15.7		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

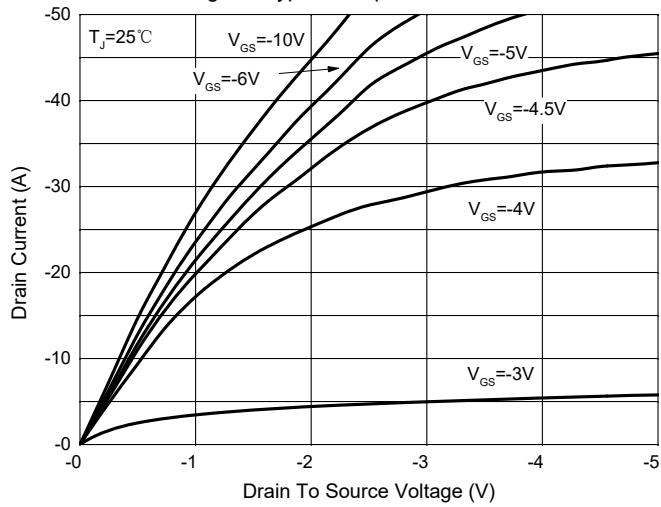


Fig. 2 - Transfer Characteristics

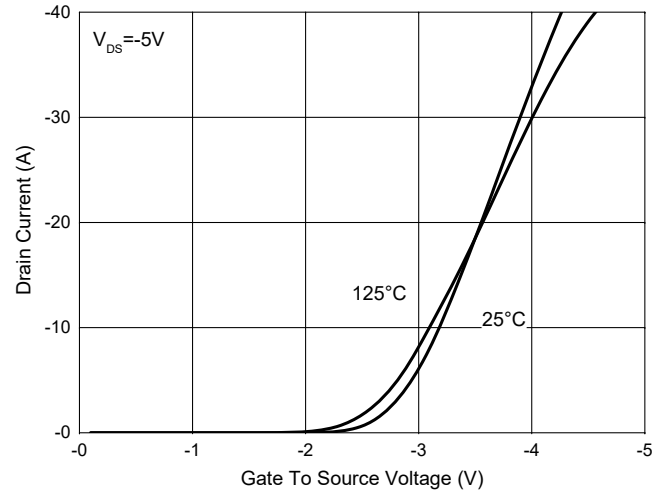


Fig. 3 - $R_{DS(ON)} - I_D$

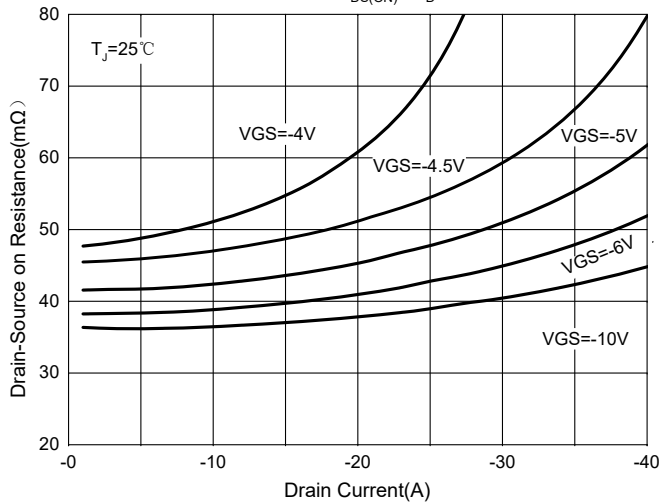


Fig.4-NormalizedOnResistanceCharacteristics

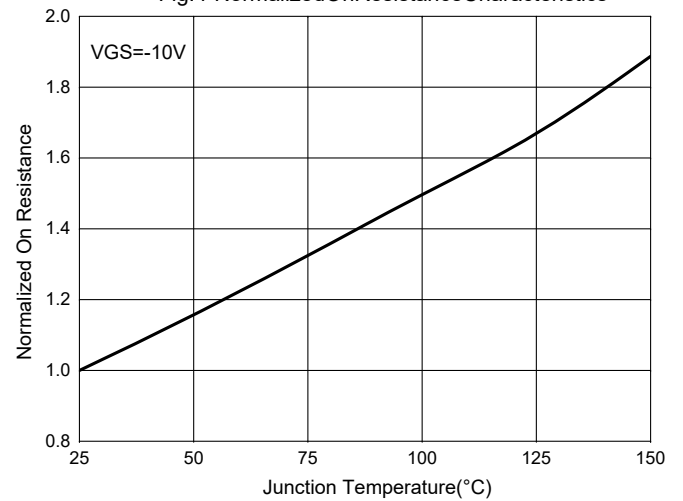


Fig. 5 - Capacitance Characteristics

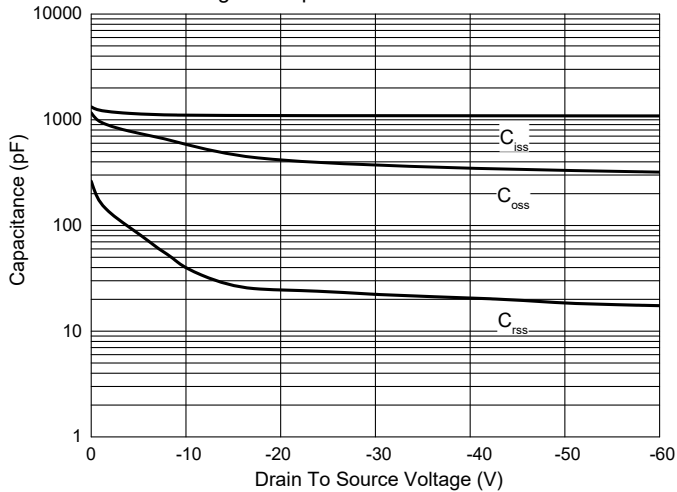
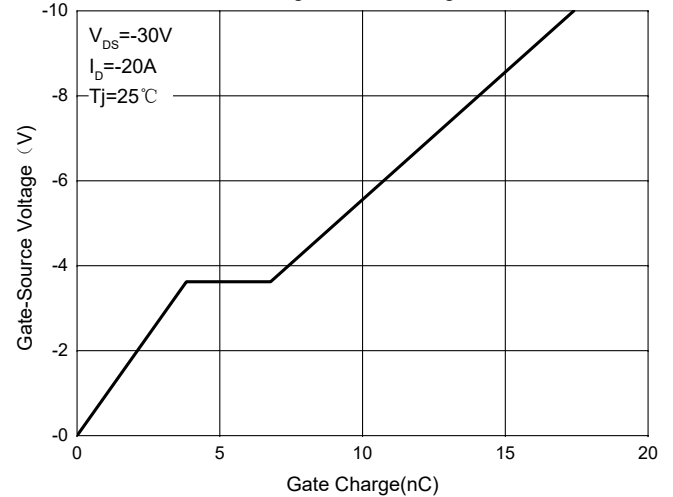


Fig. 6 - GateCharge



Curve Characteristics

Fig. 7 - $R_{DS(ON)} - V_{GS}$

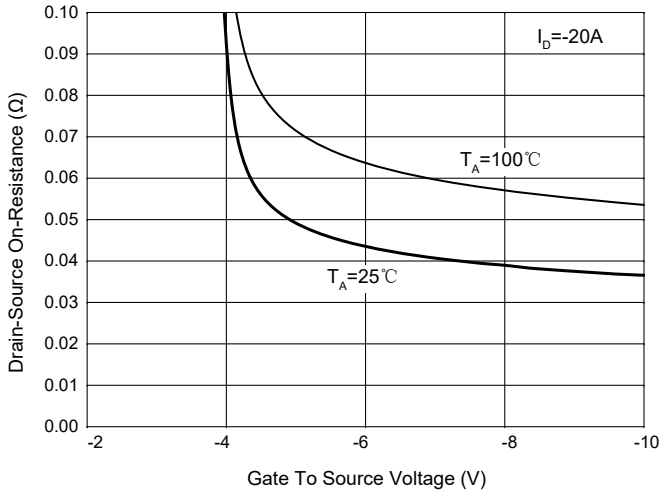


Fig. 8 - $V_{TH} - T_J$

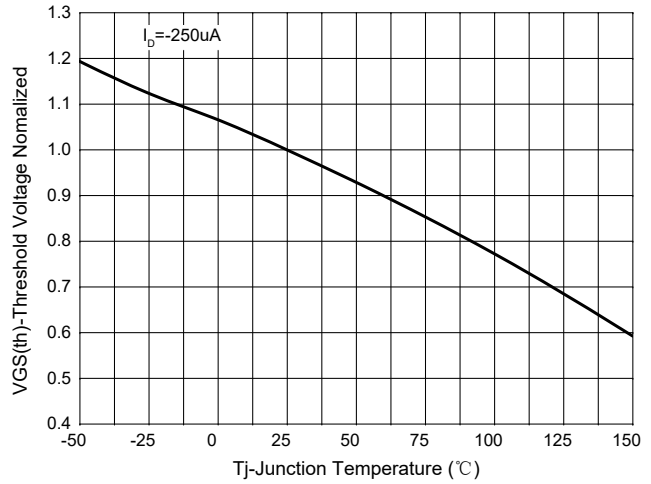


Fig. 9 - $I_s - V_{SD}$

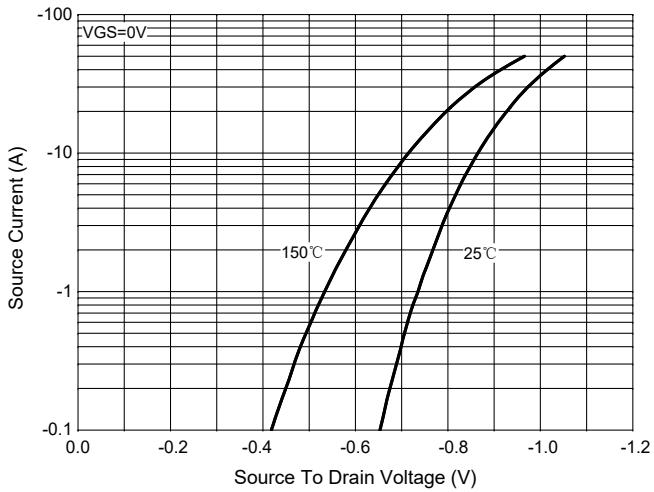


Fig. 10 - Current dissipation

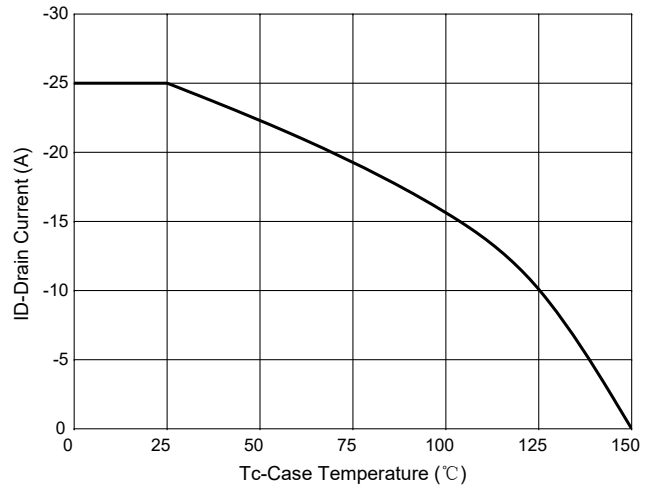
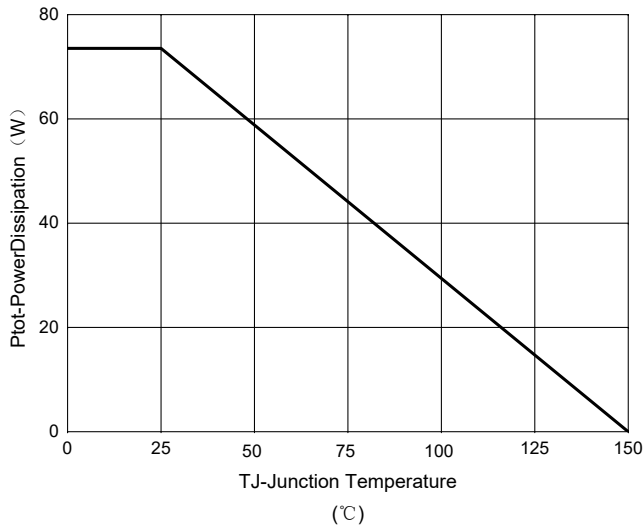


Fig. 11 - Power Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

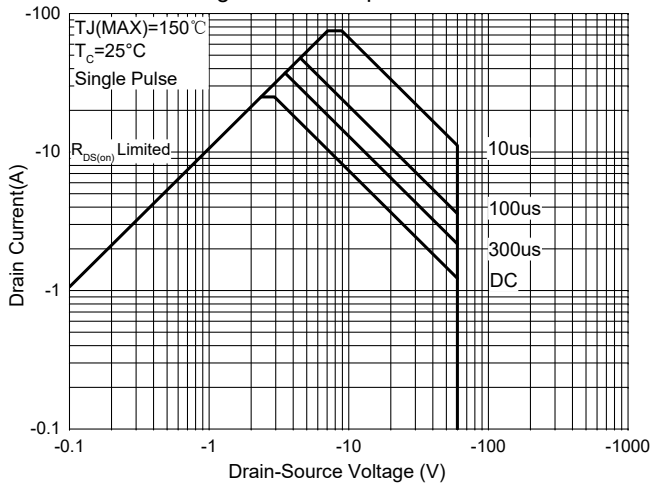
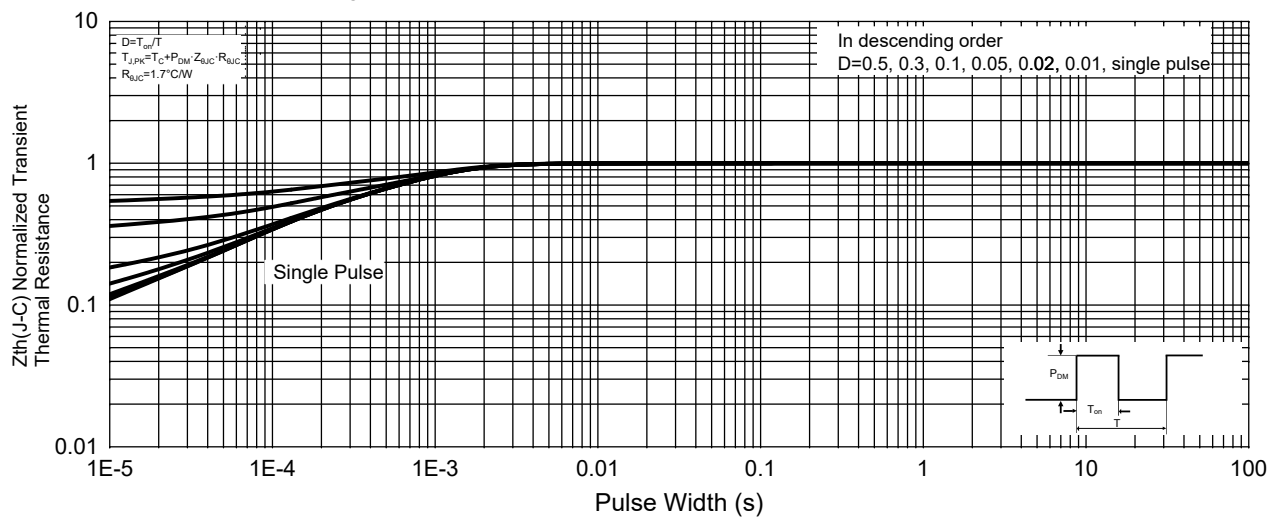


Fig. 13 -Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
MCG25P06Y-TP	Tape&Reel: 5Kpcs/Reel

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