Features

- Trench LV MOSFET Technology
- 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

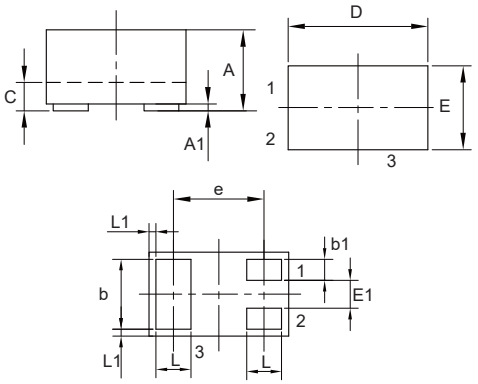
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 265°C/W Junction to Ambient(Note2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current-Continuous	T_A=25°C	I_D	-0.22	A
	T_A=100°C		-0.14	A
Pulsed Drain Current(Note3)		I_{DM}	-0.88	A
Power Dissipation(Note4)		P_D	0.47	W

Note:

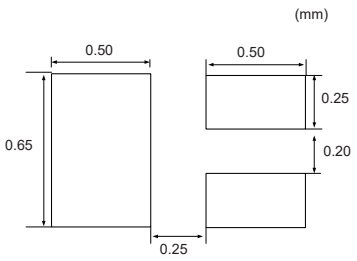
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction to ambient thermal resistance.

DFN1006-3

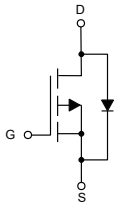


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.017	0.022	0.42	0.55	
A1	0.000	0.002	0.00	0.05	
b	0.018	0.022	0.45	0.55	
b1	0.004	0.008	0.10	0.20	
c	0.005	0.007	0.12	0.18	
D	0.037	0.041	0.95	1.05	
E	0.022	0.026	0.55	0.65	
E1	0.006	0.010	0.15	0.25	
e	0.026		0.65		TYP.
L	0.008	0.012	0.20	0.30	
L1	0.0002		0.05		TYP.

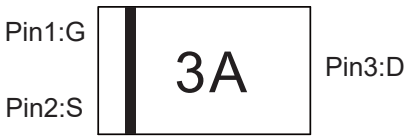
Suggested Solder Pad Layout



Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN



ELECTRICAL CHARACTERISTICS (Ta=25℃ 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	-60			V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1.1	-1.5	-2.1	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-60V, V_{GS} =0V			-1	μA
Gate-body Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	nA
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-10V, I_D=-100mA		2.5	5.0	Ω
		V_{GS}=-5V, I_D=-100mA		3.0	6.0	
Gate Resistance	R_g	f=1MHz,Open drain		40		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				-0.22	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-115mA			-1.2	V
Reverse Recovery Time	t_{rr}	IF=-0.19A,di/dt=-100A/μs		12		ns
Reverse Recovery Charge	Q_{rr}			4.4		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-30V,V_{GS}=0V,f=1MHz		22.9		pF
Output Capacitance	C_{oss}			2.9		
Reverse Transfer Capacitance	C_{rss}			1.5		
Total Gate Charge	Q_g	V_{DS}=-30V,V_{GS}=-10V,I_D=-0.19A		2.7		nC
Gate-Source Charge	Q_{gs}			0.6		
Gate-Drain Charge	Q_{gd}			0.9		
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=-30V, V_{GS}=-10V, R_G=3Ω, I_D=-0.19A		4.3		ns
Turn-On Rise Time	t_r			5.8		
Turn-Off Delay Time	$t_{d(off)}$			7.0		
Turn-Off Fall Time	t_f			46.1		

Fig. 1 - Typical Output Characteristics

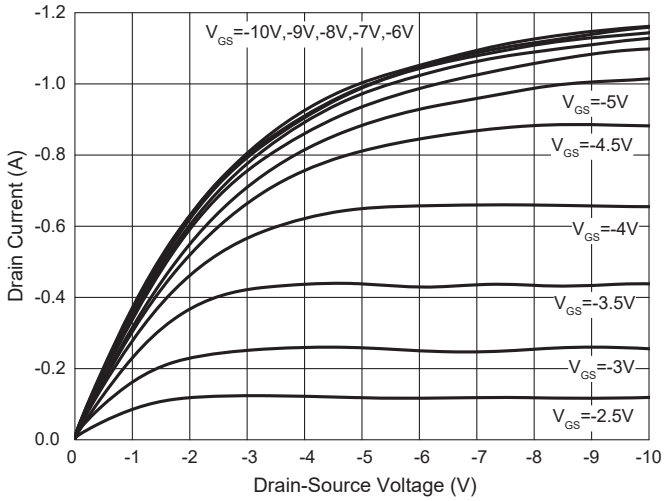


Fig. 2 - Transfer Characteristics

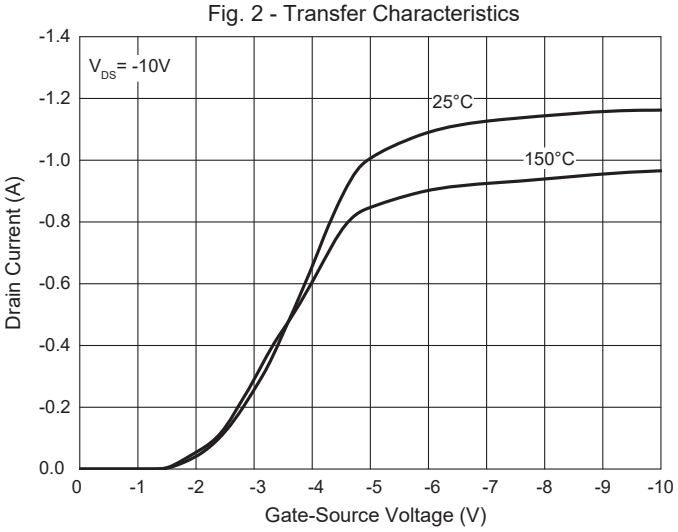


Fig.3-$R_{DS(ON)}$-V_{GS}

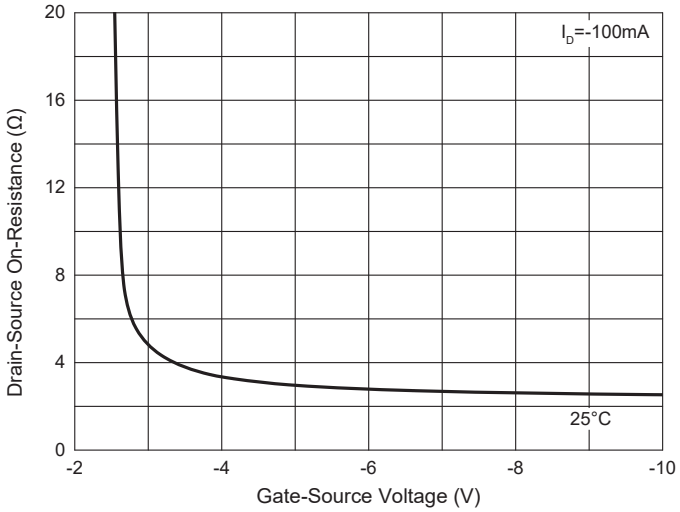


Fig.4-$R_{DS(ON)}$-I_D

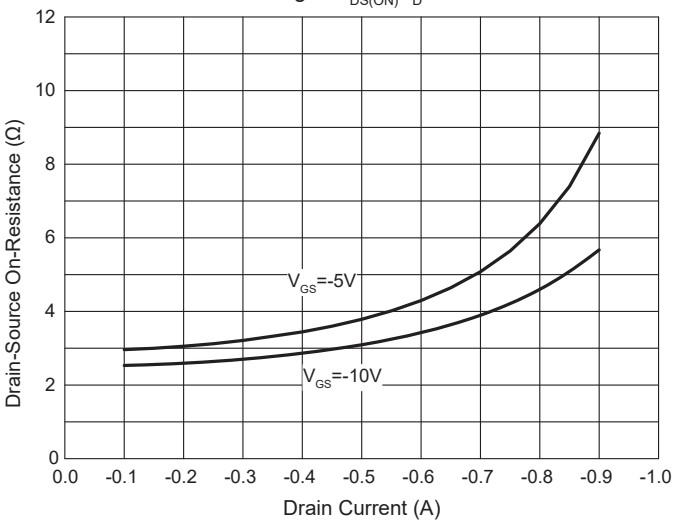


Fig. 5 - Capacitance Characteristics

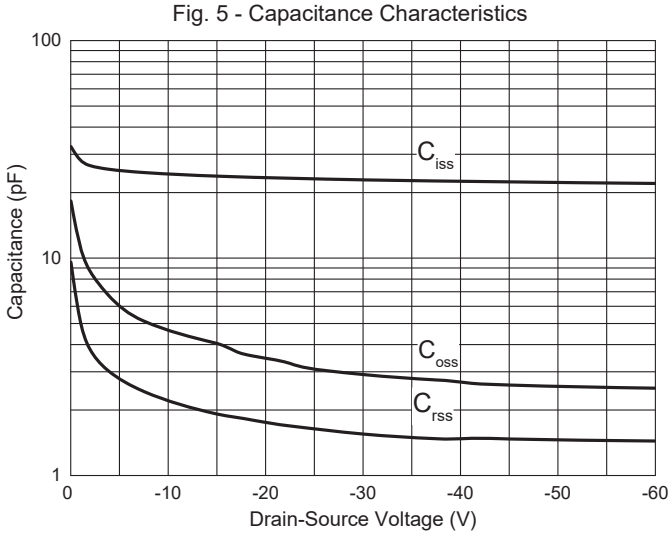


Fig. 6 - Gate Charge

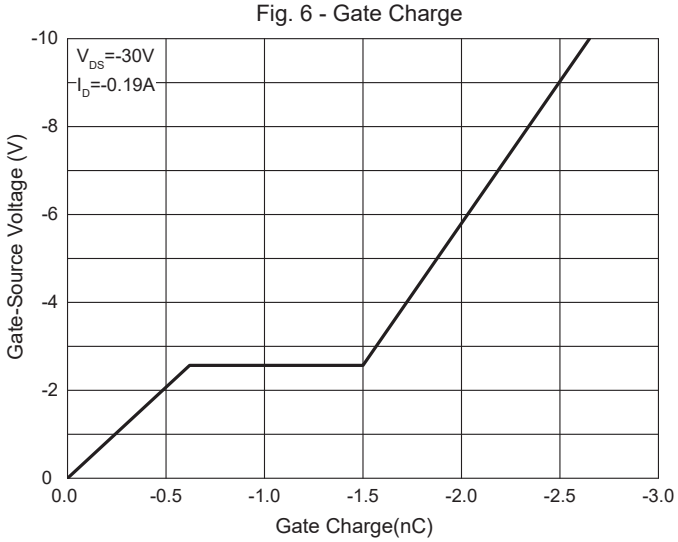


Fig. 7 - Nomalized Threshold Voltage

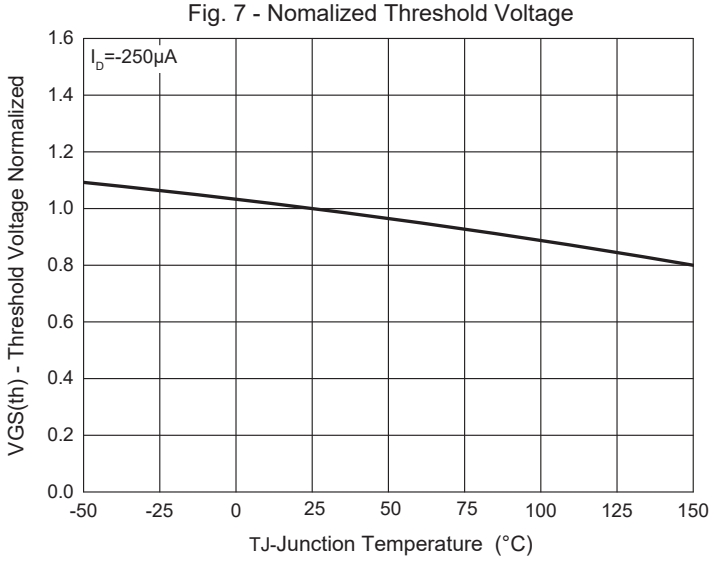


Fig. 8 - Normalized On-Resistance Characteristics

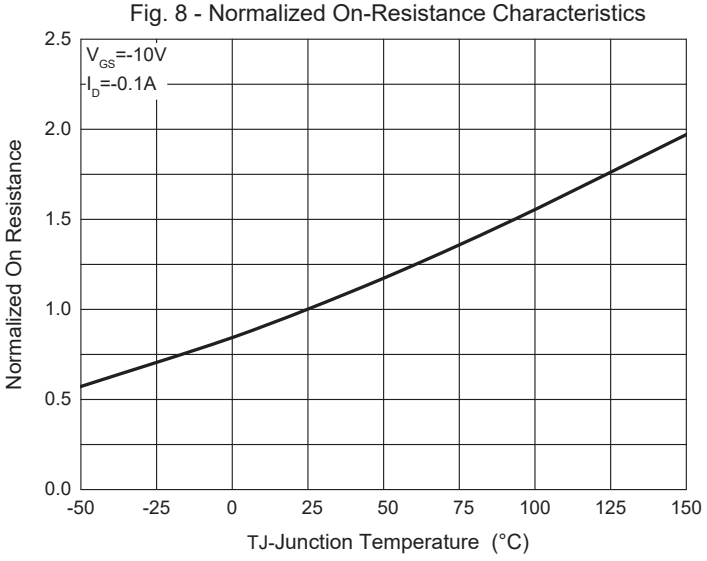


Fig.9-I_S-V_{SD}

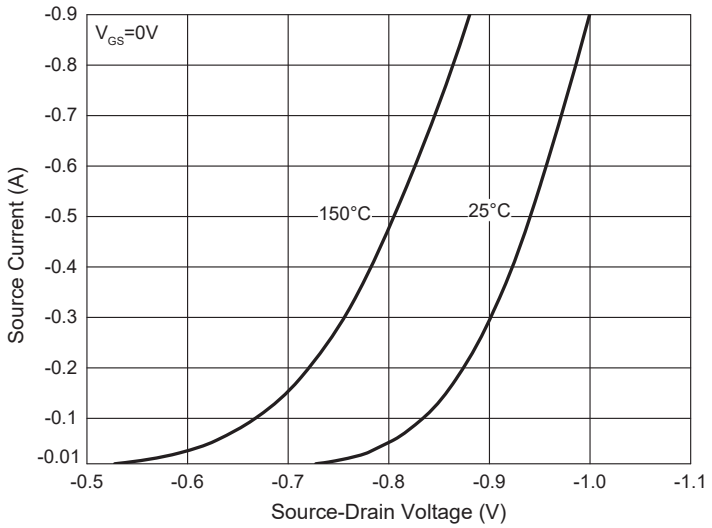


Fig. 10 - Drain Current

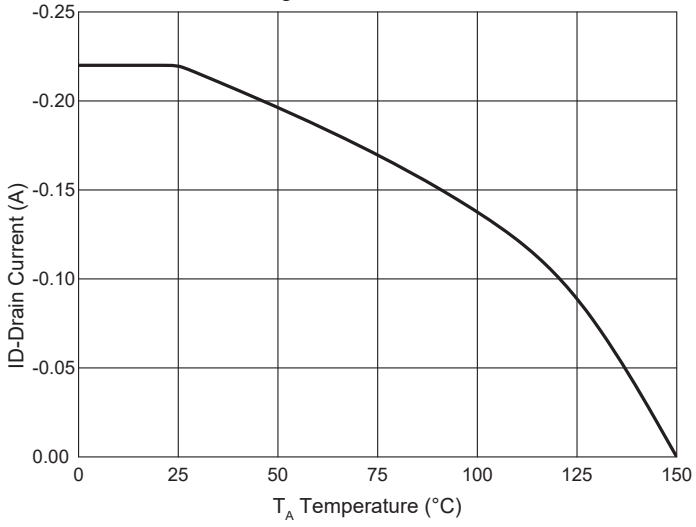


Fig. 11 - PD Dissipation

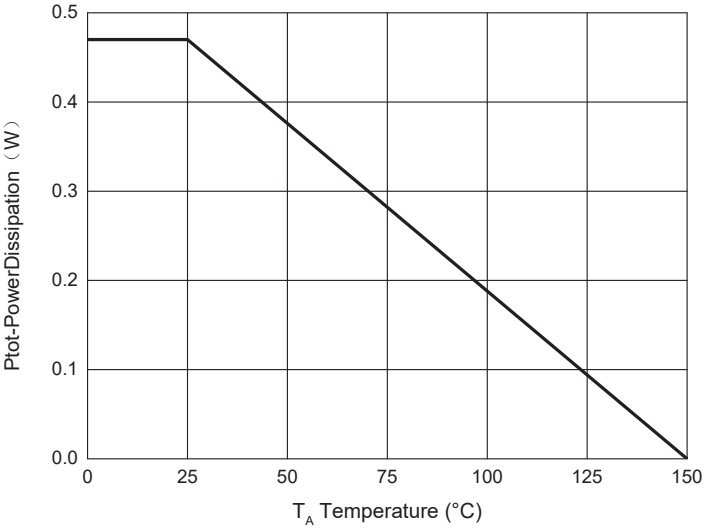


Fig.12-Safe Operation Area

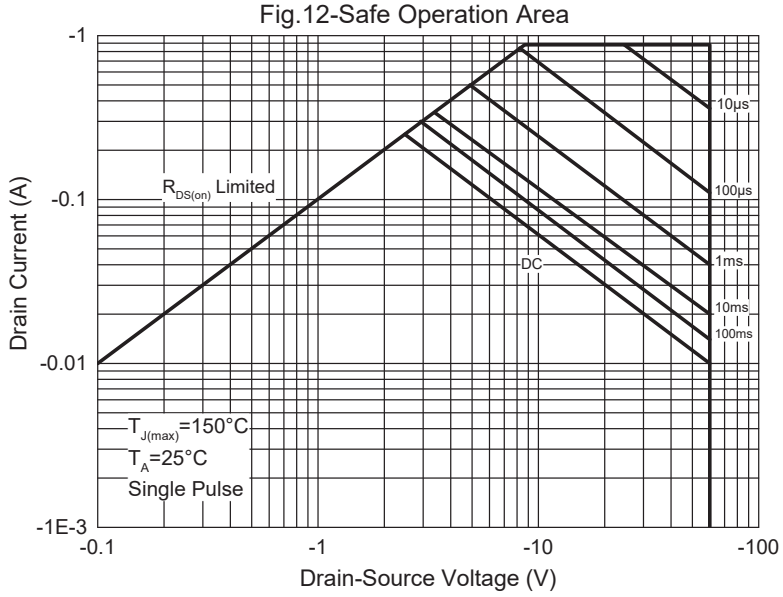
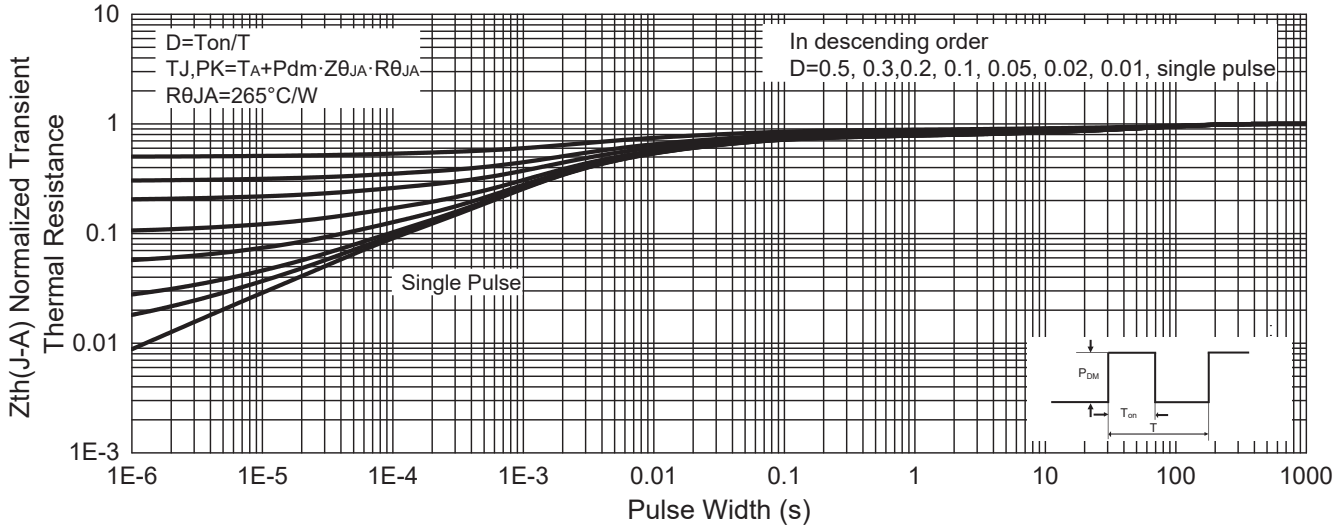


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:10Kpcs/Reel
Part Number-TPQ3	Tape&Reel:10Kpcs/Reel

For packaging details, go to our website at https://www.mccsemi.com/pdf/productpackaging/DFN1006-3_Package_Rev_I.pdf