

### Features

- Trench Power MV MOSFET Technology
- High Density Cell Design for Low  $R_{DS(on)}$
- High Speed Switching
- 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)

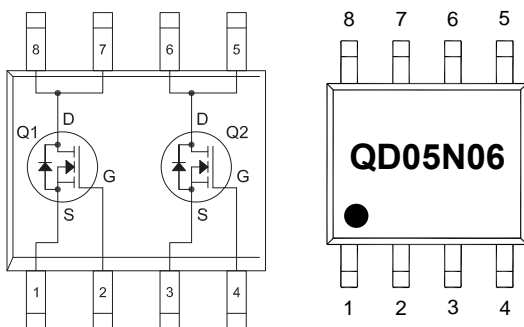
### Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 40.3°C/W Junction to Ambient (Note2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	5	A
Pulsed Drain Current (Note3)	$I_{DM}$	25	A
Total Power Dissipation	$P_D$	3.1	W

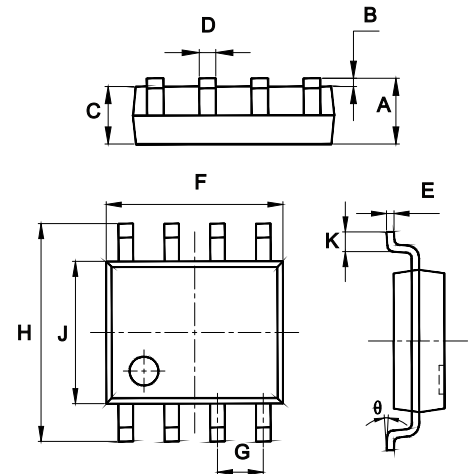
Note:  
 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.  
 2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.  
 3. Repetitive Rating: Pulse width limited by maximum junction temperature.

### Internal Structure and Marking Code



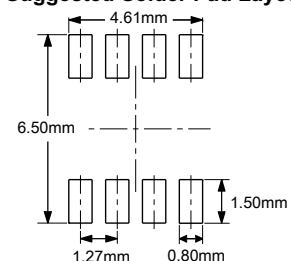
# Dual N-CHANNEL MOSFET

## SOP-8



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.053	0.069	1.35	1.75	
B	0.004	0.010	0.10	0.25	
C	0.053	0.061	1.35	1.55	
D	0.013	0.020	0.33	0.51	
E	0.007	0.010	0.17	0.25	
F	0.185	0.200	4.70	5.10	
G	0.050		1.270		TYP.
H	0.228	0.244	5.80	6.20	
J	0.150	0.157	3.80	4.00	
K	0.016	0.050	0.40	1.27	
$\theta$	0°	8°	0°	8°	

### Suggested Solder Pad Layout



**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$		35	44	m $\Omega$
		$V_{GS}=4.5V, I_D=4A$		39	49	m $\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				5	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=5A$		0.8	1.2	V
Reverse Recovery Time	$t_{rr}$	$I_F=2A, di/dt=500A/us$		45		ns
Reverse Recovery Charge	$Q_{rr}$			23		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		800		pF
Output Capacitance	$C_{oss}$			72		
Reverse Transfer Capacitance	$C_{rss}$			38		
Total Gate Charge	$Q_g$	$V_{DS}=30V, V_{GS}=10V, I_D=5A$		15		nC
Gate-Source Charge	$Q_{gs}$			2.4		
Gate-Drain Charge	$Q_{gd}$			2.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DD}=30V,$ $I_D=2A, R_L=1\Omega,$ $R_{GEN}=3\Omega$		5		ns
Turn-On Rise Time	$t_r$			39		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	$t_f$			7		

## Curve Characteristics

Fig. 1 - Typical Output Characteristics

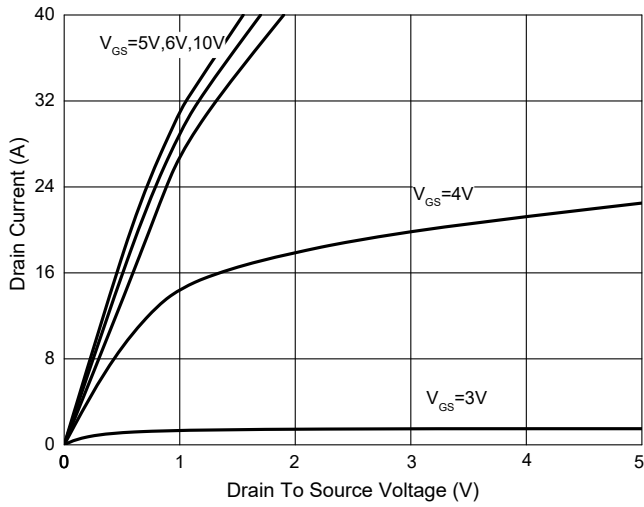


Fig. 2 - Transfer Characteristics

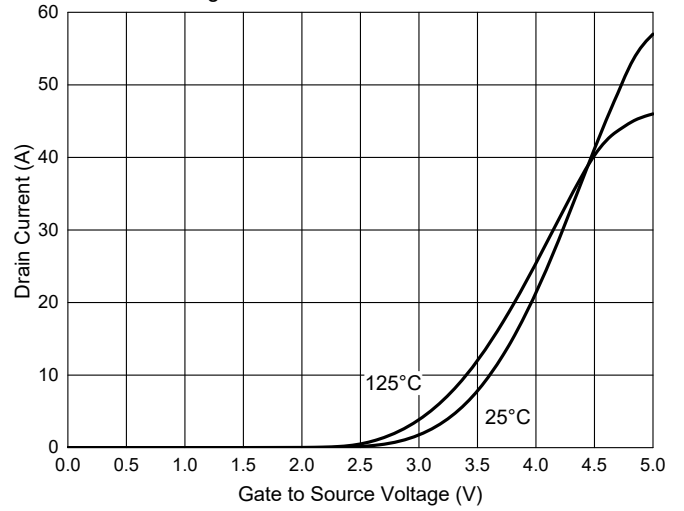


Fig. 3 -  $R_{DS(ON)} - I_D$

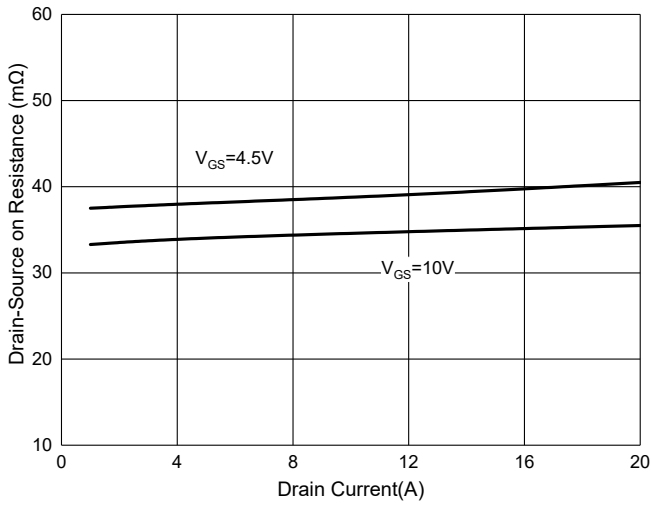


Fig. 4 - Normalized On Resistance Characteristics

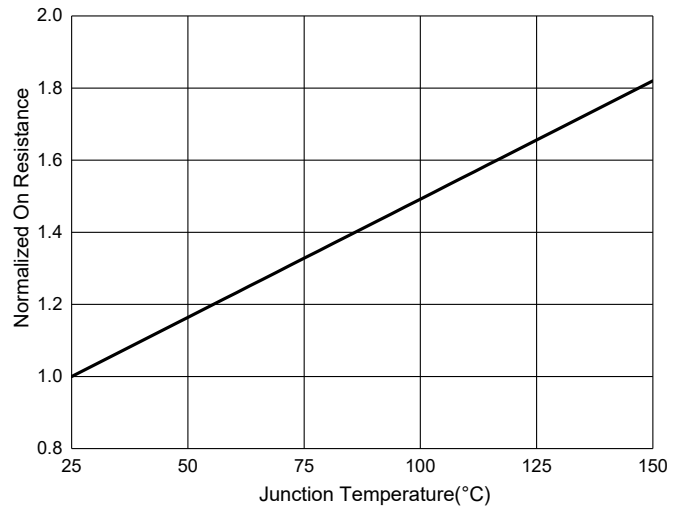


Fig. 5 - Capacitance Characteristics

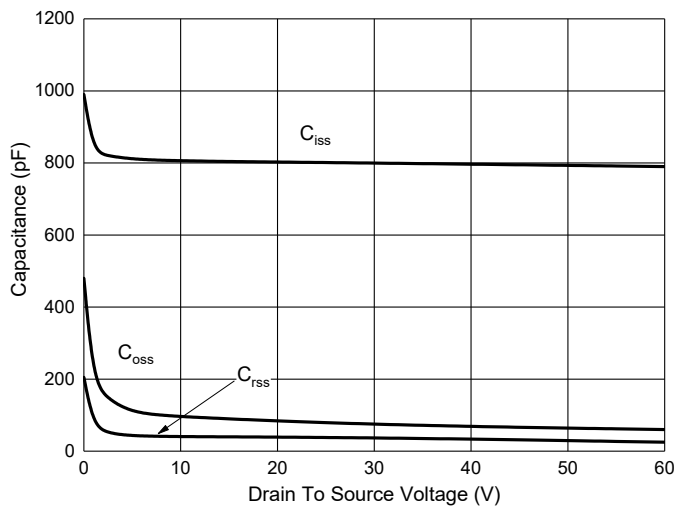
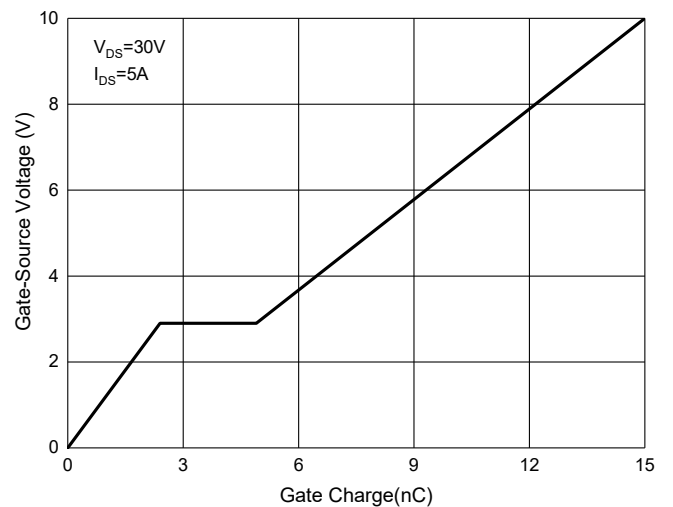
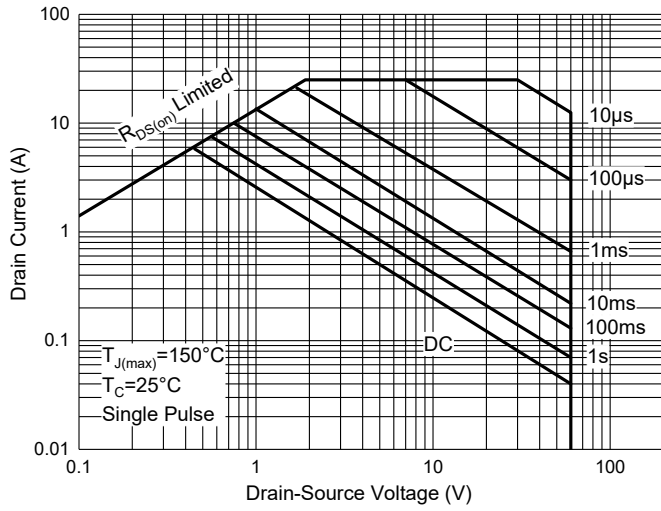


Fig. 6 - Gate Charge



## Curve Characteristics

Fig. 7 - Safe Operation Area



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 4Kpcs/Reel

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