Features

- Trench Power LV MOSFET Technology
- High Speed Switching
- High Density Cell Desihn for Low $R_{DS(on)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- 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: 39°C/W Junction to Ambient(Note 1)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Volltage		V_{GS}	±25	V
Continuous Drain Current	T_A=25°C	I_D	-12	A
	T_A=70°C		-10	A
Pulsed Drain Current (Note 2)		I_{DM}	-55	A
Single Pulse Avalanche Energy (Note 3)		E_{AS}	105	mJ
Total Power Dissipation (Note 4)		P_D	3.2	W

Note:

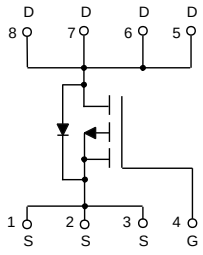
1.The Value of $R_{\theta JA}$ is Measured with the Device Mounted on 1in^2 FR-4 Board with 2oz. Copper, in a Still Air Environment with T_A=25°C. The Value in Any Given Application Depends on the User's Specific Board Design.

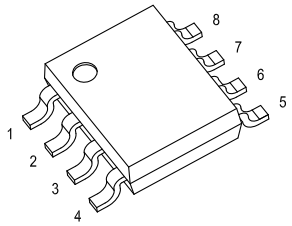
2.Pulse Test: Pulse Width≤300μs,Duty Cycle ≤2%.

3.Repetitive Rating, Pulse Width Limited by Junction Temperature $T_{J(MAX)}$=150°C. Ratings are Based on Low Frequency and Duty Cycles to Keep Initial T_J=25°C.

4.The Power Dissipation P_D is Based on $T_{J(MAX)}$=150°C, Using≤10s Junction-to-Ambient Thermal Resistance.

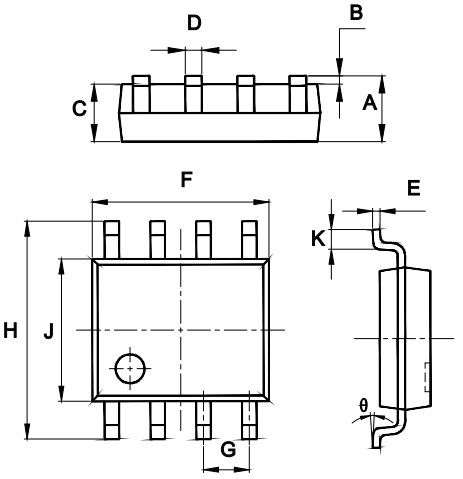
Internal Structure





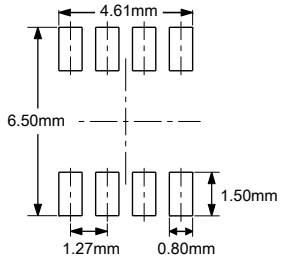
Marking:Q4407B

SOP-8



DIMENSIONS					
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	
θ	0°	8°	0°	8°	

Suggested Solder Pad Layout



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=-250μA	-30			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±25V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1.2	-1.8	-2.8	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-20V, I_D=-12A		9	10.5	mΩ
		V_{GS}=-10V, I_D=-12A		10.2	12.5	
		V_{GS}=-6V, I_D=-10A		12.3	16.5	
		V_{GS}=-4.5V, I_D=-10A		16	25	
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-12A		-0.8	-1.2	V
Continuous Body Diode Current	I_S				-12	A
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V,f=1MHz		2050		pF
Output Capacitance	C_{oss}			355		
Reverse Transfer Capacitance	C_{rss}			301		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=-15V,V_{GS}=-10V,I_D=-12A		29.8		nC
Gate-Source Charge	Q_{gs}			4.7		
Gate-Drain Charge	Q_{gd}			10		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V,V_{DD}=-15V, I_D=-1A, R_{GEN}=2.5Ω		14		ns
Turn-On Rise Time	t_r			12		
Turn-Off Delay Time	$t_{d(off)}$			26		
Turn-Off Fall Time	t_f			10		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

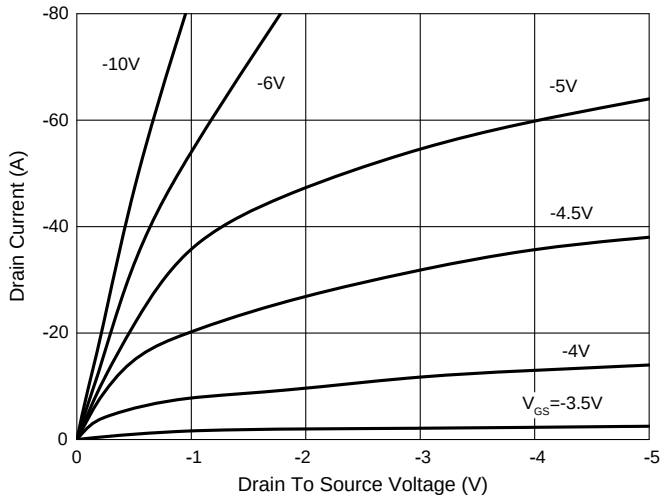


Fig. 2 - Transfer Characteristics

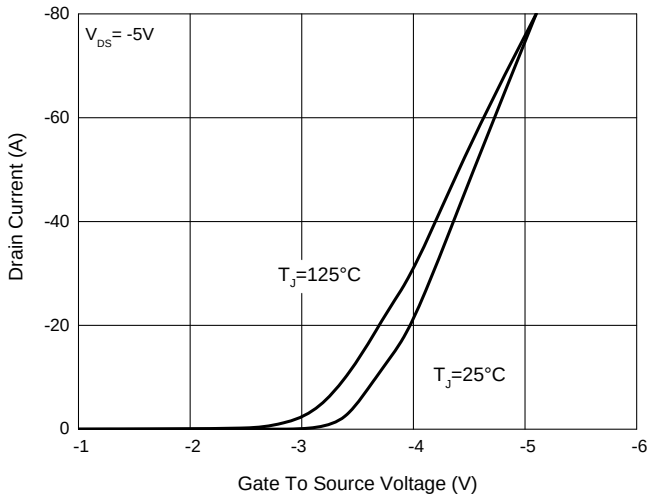


Fig. 3 - Capacitance Characteristics

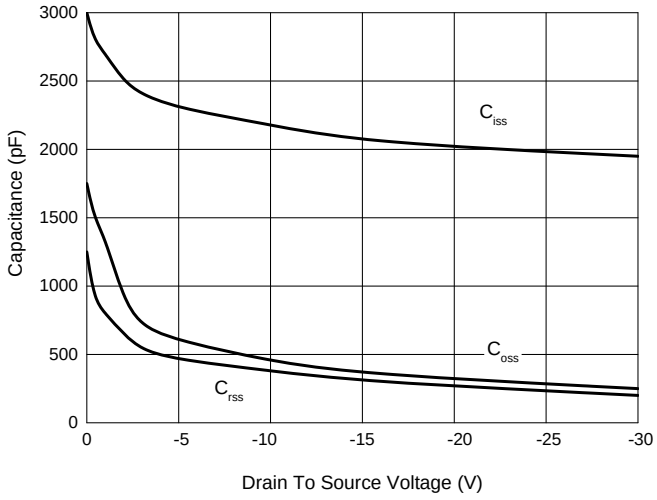


Fig. 4 - $R_{DS(ON)}$—I_D

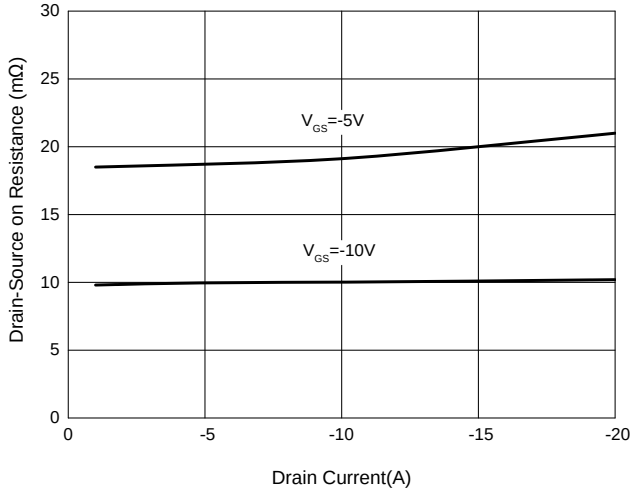


Fig. 5 - Total Gate Charge Characteristics

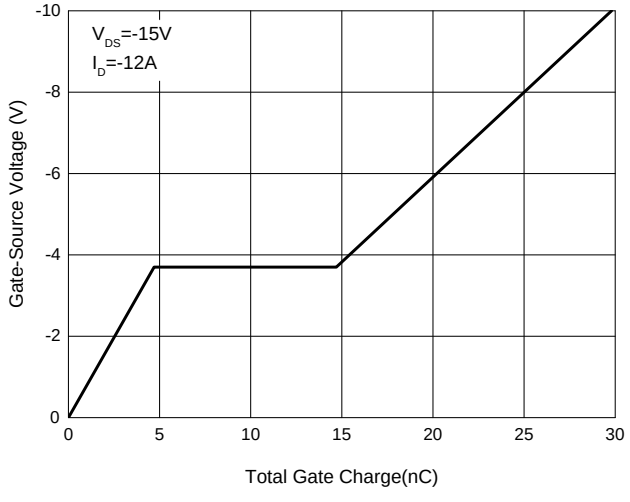
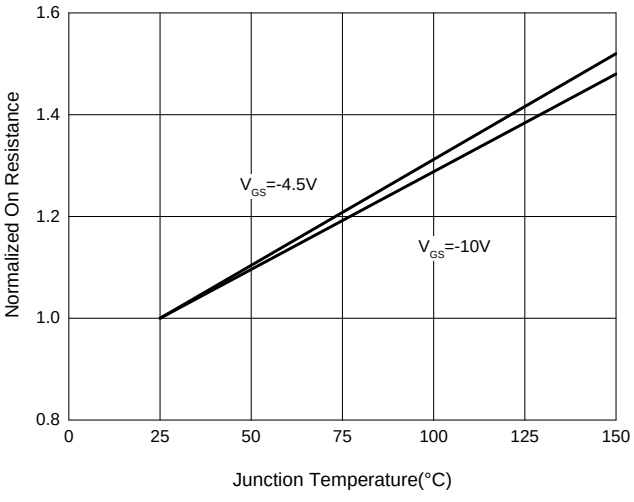


Fig. 6 - Normalized On Resistance Characteristics



Ordering Information

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

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF