Features

- Advanced Trench MOSFET Process Technology
- 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 Power MOSFET

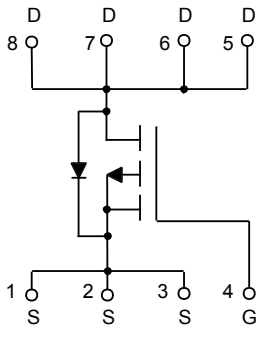
Maximum Ratings

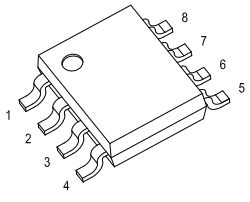
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 89°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	-30	V
Gate -Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	-6.5	A
Drain Current-Pulsed	I_{DM}	-26	A
Power Dissipation	P_D	1.4	W
Single Pulsed Avalanche Energy (Note1)	E_{AS}	14	mJ

Note:
1.EAS condition: V_{DD}=-50V,L=0.5mH, R_G=25Ω, Starting T_J = 25°C

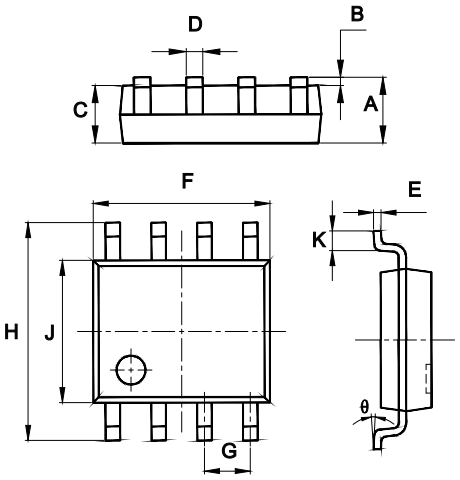
Internal Structure





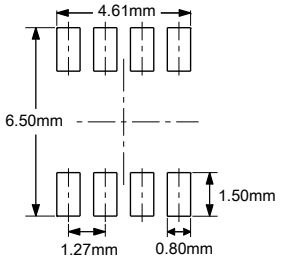
Marking:Q4459

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 (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	-30			V
Gate-Threshold Voltage(Note1)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1.4	-2.0	-2.4	V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=± 20V, V_{DS}=0V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1.0	μA
Drain-Source On-Resistance(Note1)	$R_{DS(on)}$	V_{GS}=-10V, I_D=-6.5A		26	46	mΩ
		V_{GS}=-4.5V, I_D=-5.0A		46	72	
Forward Transconductance(Note1)	g_{FS}	V_{DS}=-5.0V, I_D=-6.5A	6.0			S
Dynamic Characteristics(Note2)						
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V, f=1MHz	415		625	pF
Output Capacitance	C_{oss}		70		130	
Reverse Transfer Capacitance	C_{rss}		40		90	
Switching Characteristics(Note2)						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-15V,I_D=-1.0A,V_{GS}=-10V , R_{GEN}=3.0Ω, R_L=2.5Ω		7.5		nS
Turn-On Rise Time	t_r			5.5		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	t_f			7.0		
Gate Resistance	R_g	V_{DS}=0V,V_{GS}=0V, f=1MHz	3.5	7.5	11.5	Ω
Total Gate Charge	Q_g	V_{DS}=-15V, I_D=-6.5A,V_{GS}=-10V	7.4		11	nC
Gate-Source Charge	Q_{gs}		1.3		1.9	
Gate-Drain Charge	Q_{gd}		1.3		3.1	
Drain-Source Diode Characteristics						
Diode Forward Voltage(Note1)	V_{SD}	V_{GS}=0V,I_S=-1A			-1.0	V
Continuous Drain-Source Diode Forward Current	I_S				-6.5	A
Pulsed Drain-Source Diode Forward Current	I_{SM}				-26	A

Note:
1.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2.Guaranteed by design, not subject to production testing.

Curve Characteristics

Fig. 1 - Output Characteristics

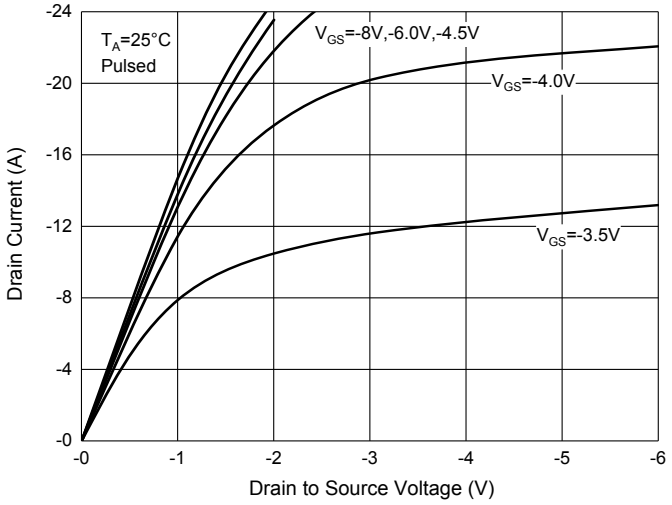


Fig. 2 - Transfer Characteristics

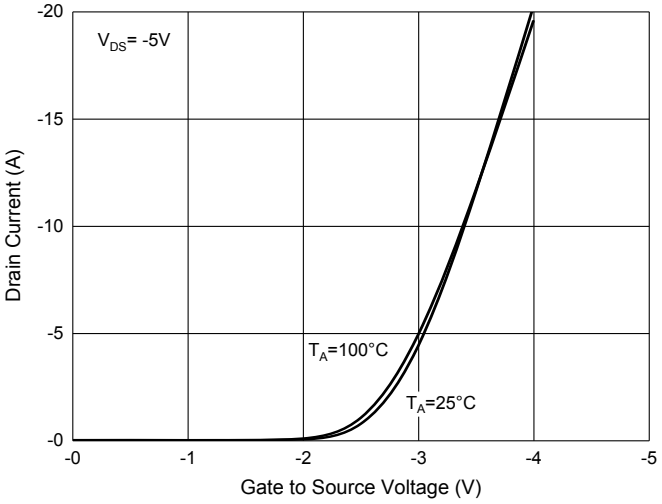


Fig. 3 - $R_{DS(ON)}$—I_D

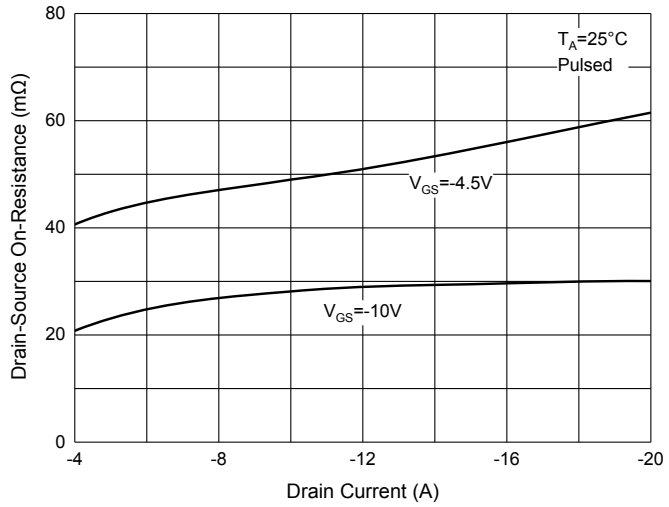


Fig. 4 - $R_{DS(ON)}$—V_{GS}

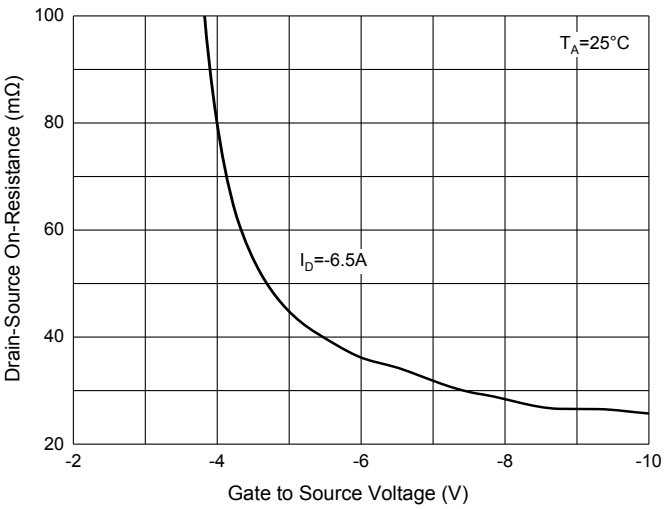


Fig. 5 - Threshold Voltage

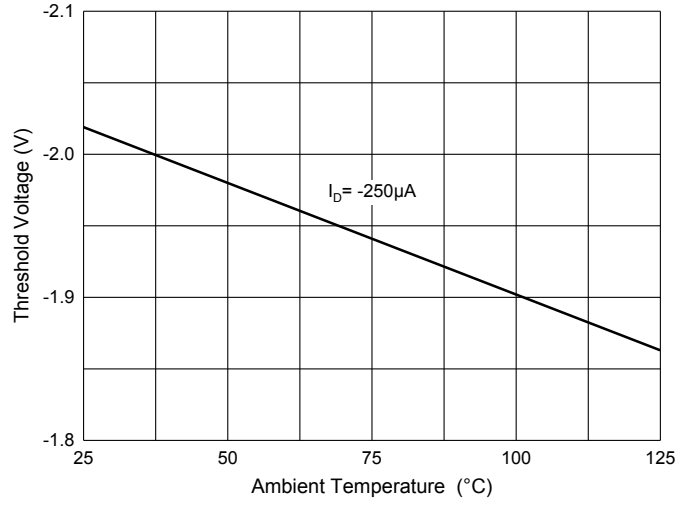
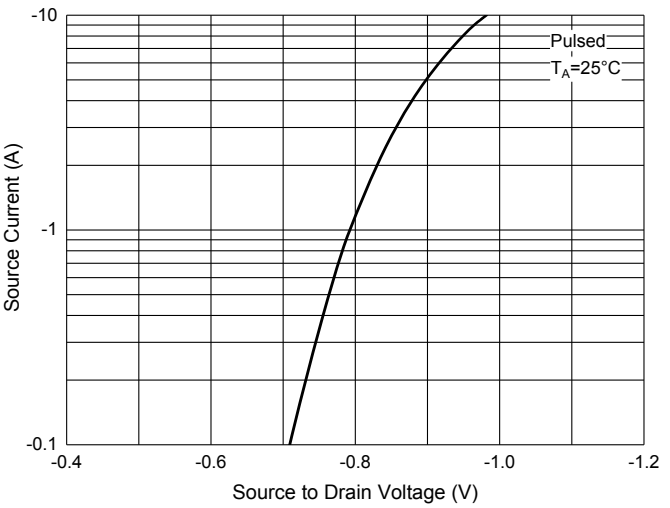


Fig. 6 - I_S—V_{SD}



Ordering Information

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

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