

## Features

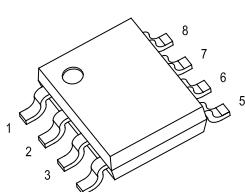
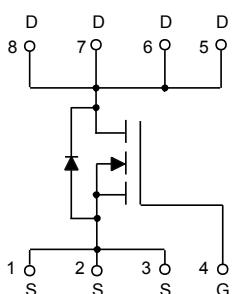
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings

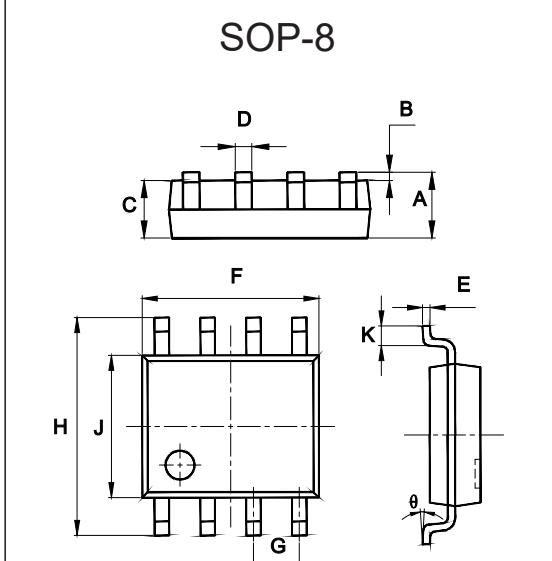
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Case<sup>(Note2)</sup>

Parameter	Symbol	Rating	Unit
Drain -Source Voltage	$V_{DS}$	30	V
Gate -Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous	$I_D$	16	A
Drain Current-Continuous( $T_C=100^\circ\text{C}$ )	$I_D$	6	A
Pulsed Drain Current <sup>(Note 1)</sup>	$I_{DM}$	50	A
Maximum Power Dissipation	$P_D$	2.5	W

## Internal Structure

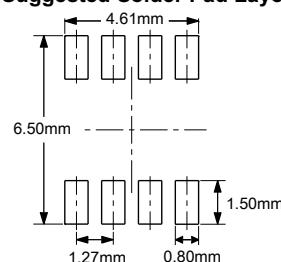


## N-Channel Enhancement Mode Field Effect Transistor



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 (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(B)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	33		V
Gate-Threshold Voltage <sup>(Note3)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.6	3.0	V
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$			1	$\mu A$
Drain-Source On-Resistance <sup>(Note3)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=10A$		8.0	12	$m\Omega$
		$V_{GS}=4.5V, I_D=5.0A$		11	16	
Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=10A$	15			S
<b>Dynamic Characteristics<sup>(Note4)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		1550		pF
Output Capacitance	$C_{oss}$			300		
Reverse Transfer Capacitance	$C_{rss}$			180		
<b>Switching Characteristics<sup>(Note4)</sup></b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=25V, V_{GS}=10V, I_D=1A, R_{GEN}=6\Omega$		30		ns
Turn-On Rise Time	$t_r$			20		
Turn-Off Delay Time	$t_{d(off)}$			100		
Turn-Off Fall Time	$t_f$			80		
Total Gate Charge	$Q_g$	$V_{DS}=15V, I_D=10A, V_{GS}=5.0V$		13		nC
Gate-Source Charge	$Q_{gs}$			5.5		
Gate-Drain Charge	$Q_{gd}$			3.5		
<b>Source-Drain Diode characteristics</b>						
Drain-Source Diode Forward Current <sup>(Note2)</sup>	$I_S$				16	A
Diode Forward voltage <sup>(Note3)</sup>	$V_{SD}$	$V_{GS}=0V, I_S=10A$			1.2	V

Notes:

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2.Surface Mounted on FR4 Board,  $t \leq 10$  sec.
- 3.Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
- 4.Guaranteed by design, not subject to production

## Curve Characteristics

Fig. 1 - Output Characteristics

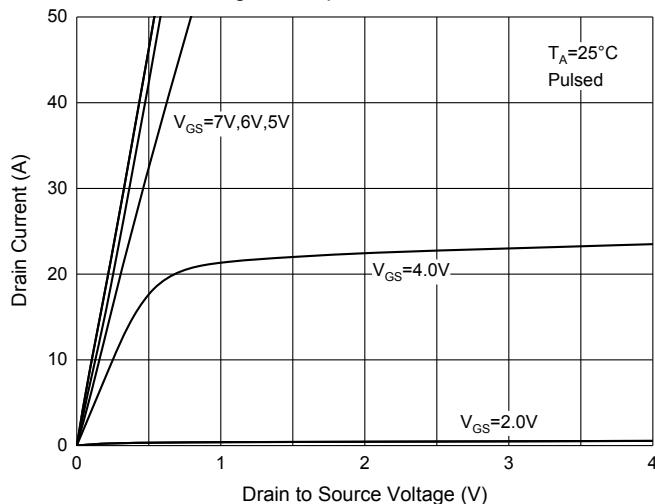


Fig. 2 - Transfer Characteristics

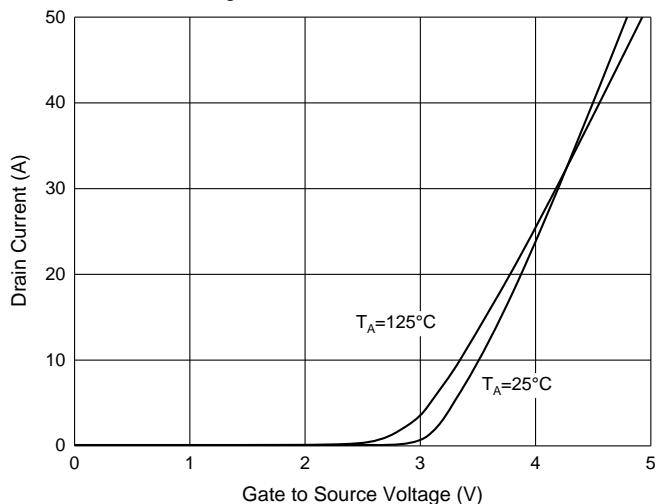


Fig. 3 -  $R_{DS(ON)}$ — $I_D$

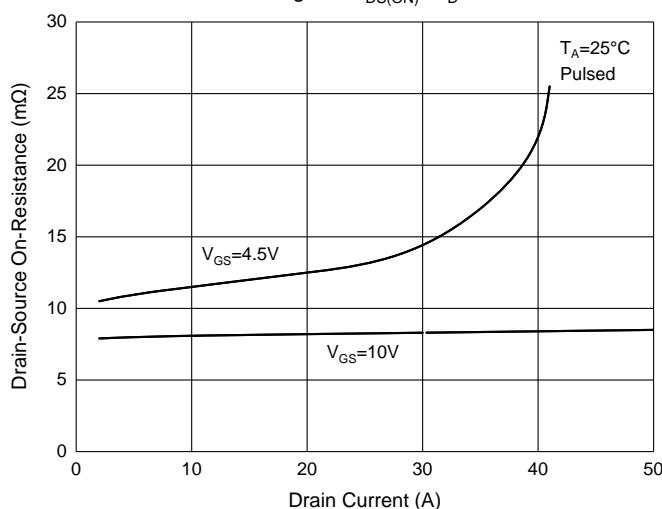


Fig. 4 -  $I_S$ — $V_{SD}$

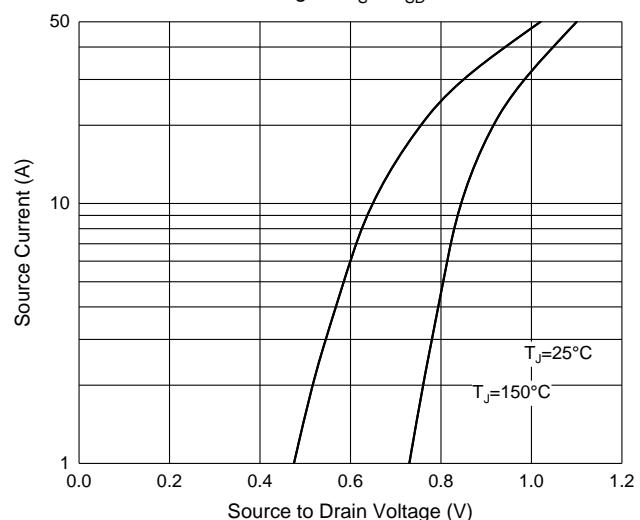


Fig. 5 - Threshold Voltage

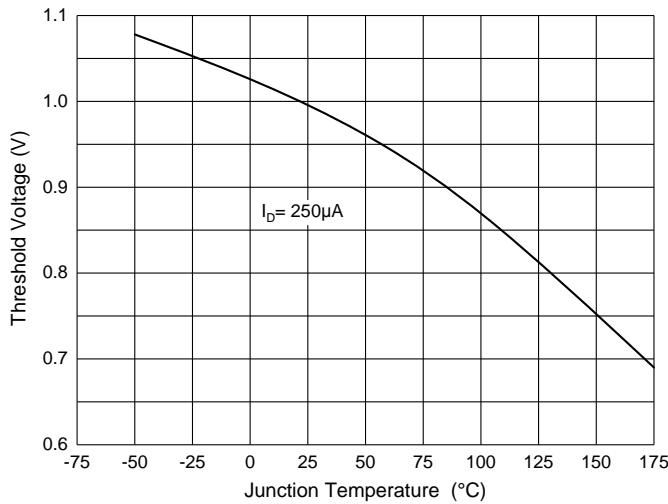
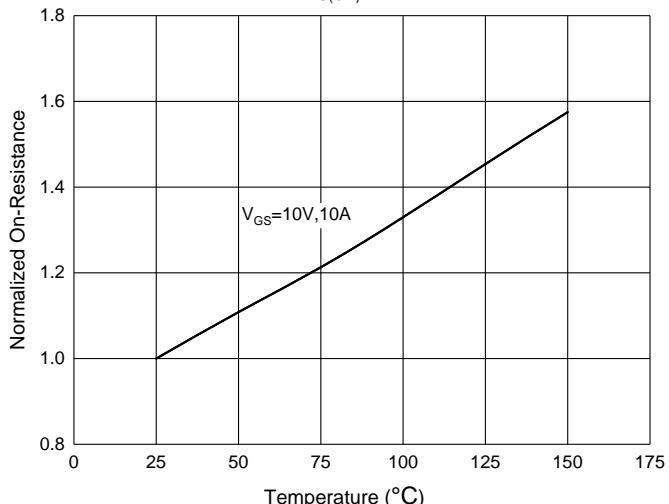


Fig. 6 -  $R_{DS(ON)}$ —Temperature



## Ordering Information

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

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

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