

Features

- High Density Cell Design For Low $R_{DS(ON)}$
- Trench Power LV MOSFET Technology
- Excellent Package for Heat Dissipation
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL MOSFET

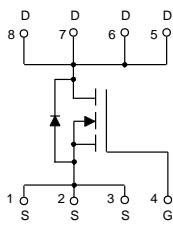
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Maximum Thermal Resistance: 7.5°C/W Junction to Case^(Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	30	A
		21	
Pulsed Drain Current ^(Note 3)	I_{DM}	100	A
Total Power Dissipation	P_D	20	W
		10	
Single Pulse Avalanche Energy ^(Note 4)	E_{AS}	128	mJ

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 Maximum Rating Presented Here is Based on Mounting on a 1in² Pad of 2oz Copper.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. $T_J=25^\circ C$, $V_{DD}=20V$, $V_G=10V$, $L=0.5mH$, $R_g=25\Omega$

Internal Structure

DFN3333					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.09	0.10	2.28	2.54	
B	0.09	0.10	2.28	2.54	
C	0.04	0.05	1.02	1.27	
OF	0.009	0.010	0.228	0.254	
OG	0.009	0.010	0.228	0.254	
OF	0.009	0.010	0.228	0.254	
OG	0.009	0.010	0.228	0.254	
Ø	0.009	0.010	0.228	0.254	
Ø	0.009	0.010	0.228	0.254	
P	0.010	0.016	0.254	0.406	
^	0.024	0.028	0.610	0.711	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V, T_J=25^{\circ}C$			1	μA
		$V_{DS}=30V, V_{GS}=0V, T_J=55^{\circ}C$			5	
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	$R_{DS(on)}$	$V_{GS}=10V, I_D=15A$		8	10	$m\Omega$
		$V_{GS}=4.5V, I_D=15A$		10	13	
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=15A$		0.85	1.2	V
Maximum Body-Diode Continuous Current	I_S				30	A
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		1020		pF
Output Capacitance	C_{oss}			225		
Reverse Transfer Capacitance	C_{rss}			126		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=10V, I_D=30A$		28		nC
Gate-Source Charge	Q_{gs}			7		
Gate-Drain Charge	Q_{gd}			5		
Reverse Recovery Charge	Q_{rr}	$I_F=15A, dI/dt=100A/\mu s$		25		ns
Reverse Recovery Time	t_{rr}			26		
Turn-On Delay Time	$t_{d(on)}$			8		
Turn-On Rise Time	t_r	$V_{GS}=10V, V_{DS}=20V, I_D=2A, R_L=1\Omega, R_{GEN}=3\Omega$		15		ns
Turn-Off Delay Time	$t_{d(off)}$			27		
Turn-Off Fall Time	t_f			7		

Fig. 1 - Output Characteristics

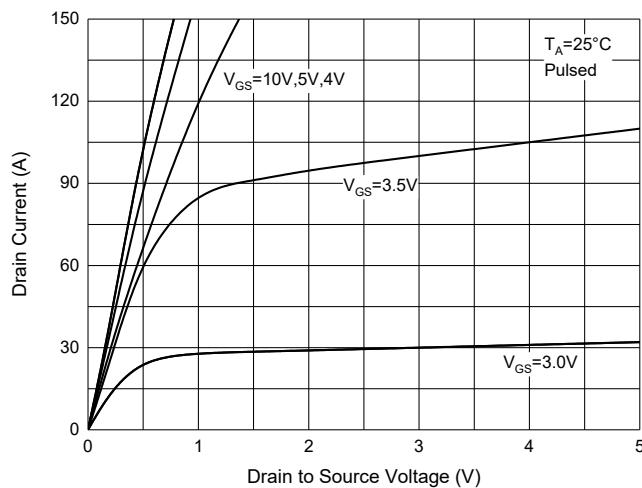


Fig. 2 - Transfer Characteristics

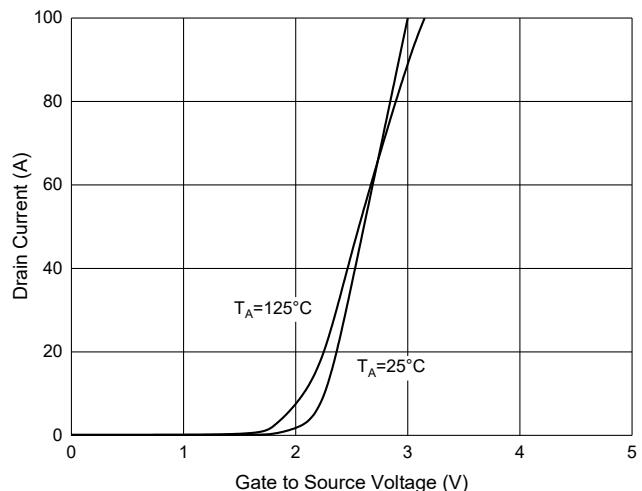


Fig. 3 - Capacitance Characteristics

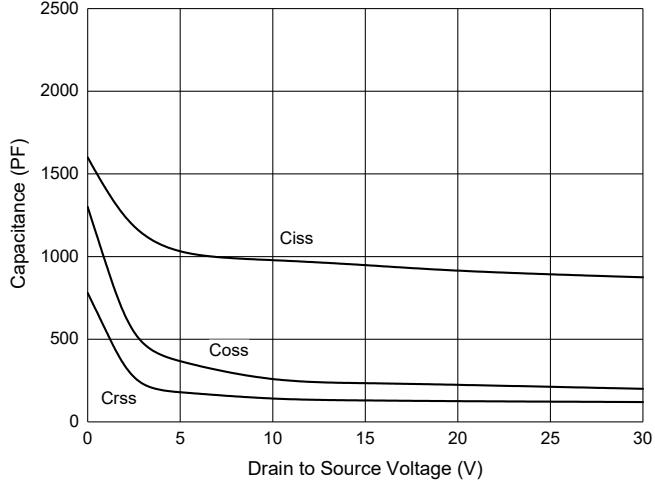


Fig. 5 - $R_{DS(ON)}$ — I_D

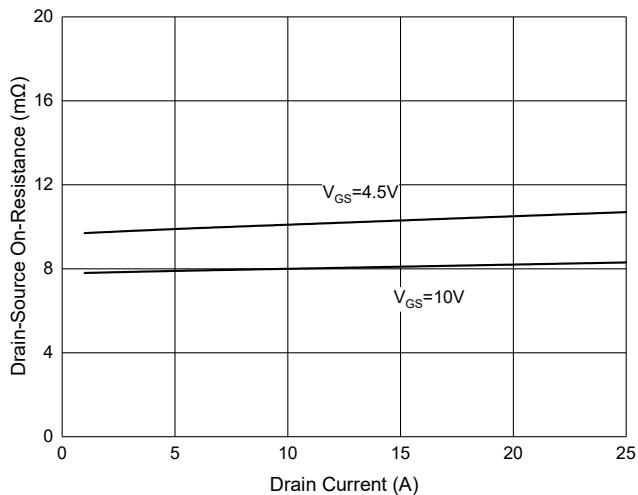


Fig. 4 - Gate Charge

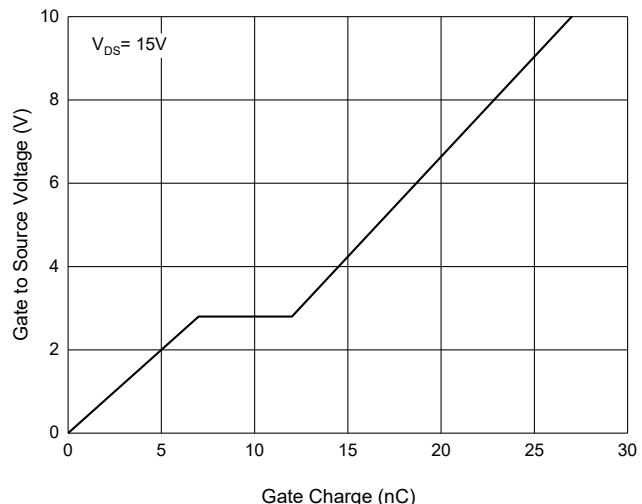
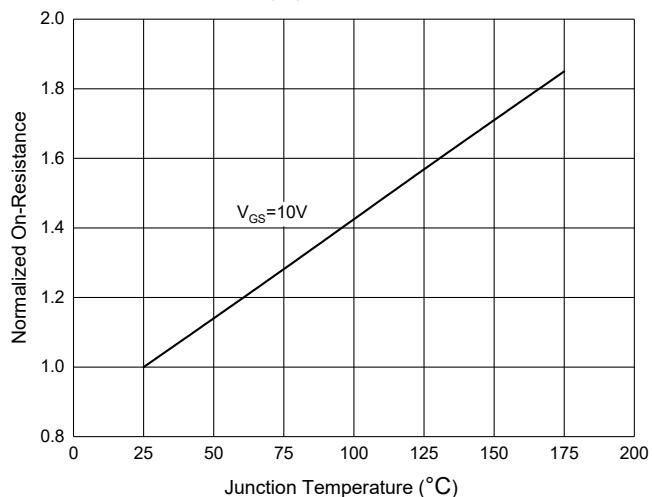


Fig. 6 - $R_{DS(ON)}$ —Temperature



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 5Kpcs/Reel

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