

Features

- Trench Power LV MOSFET Technology
- High Power and Current Handling Capability
- 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

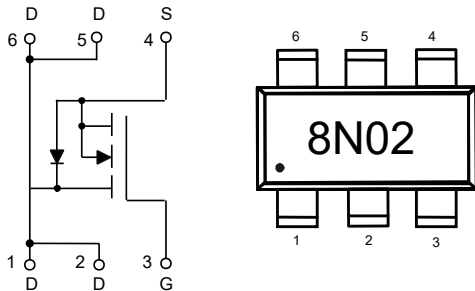
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 83°C/W Junction to Ambient ⁽¹⁾

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	8 A
		$T_A=70^\circ\text{C}$	6.4 A
Pulsed Drain Current ⁽²⁾	I_{DM}	30	A
Total Power Dissipation	P_D	1.5	W

Note:

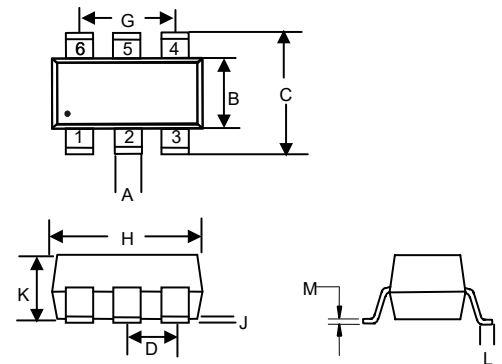
1. Device Mounted on FR-4 PCB, 1 Square Inch Pad of 2 oz Copper.
2. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.

Internal Structure and Marking Code



N-CHANNEL MOSFET

SOT23-6L



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.012	0.020	0.30	0.50	
B	0.051	0.070	1.30	1.80	
C	0.087	0.126	2.20	3.20	
D	0.037		0.95		TYP.
G	0.074		1.90		TYP.
H	0.106	0.122	2.70	3.10	
J	0.002	0.006	0.05	0.15	
K	0.030	0.051	0.75	1.30	
L	0.012	0.024	0.30	0.60	
M	0.003	0.008	0.08	0.22	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.45	0.62	1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=5A$		14	17	m Ω
		$V_{GS}=2.5V, I_D=3A$		17	21	m Ω
		$V_{GS}=1.8V, I_D=1.5A$		28	39	m Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				8	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=7A$			1.2	V
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		900		pF
Output Capacitance	C_{oss}			165		
Reverse Transfer Capacitance	C_{rss}			75		
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=5A$		9.2		nC
Gate-Source Charge	Q_{gs}			1.7		
Gate-Drain Charge	Q_{gd}			2.9		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=4.5V, V_{DD}=10V,$ $R_L=1.5\Omega, R_{GEN}=3\Omega$		12		ns
Turn-On Rise Time	t_r			52		
Turn-Off Delay Time	$t_{d(off)}$			17		
Turn-Off Fall Time	t_f			10		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

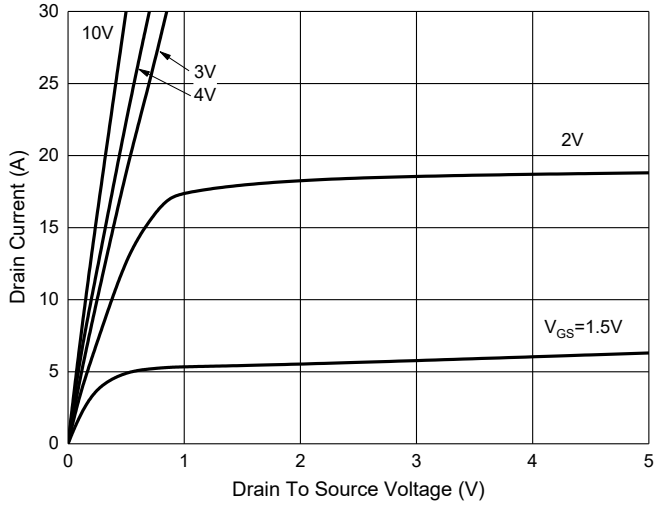


Fig. 2 - Transfer Characteristics

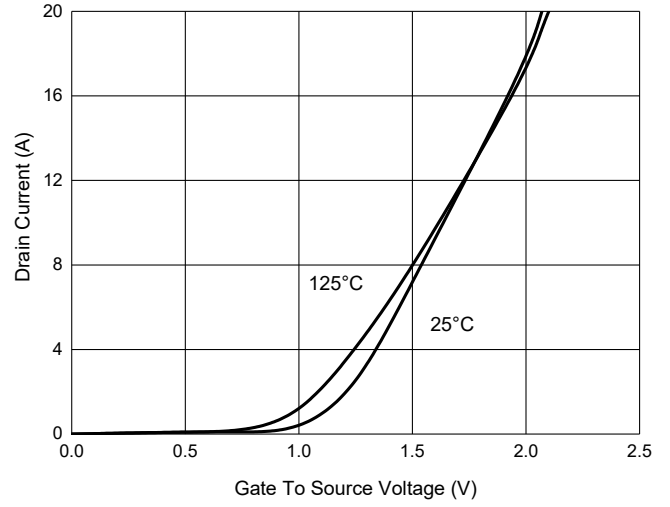


Fig. 3 - $R_{DS(ON)} - I_D$

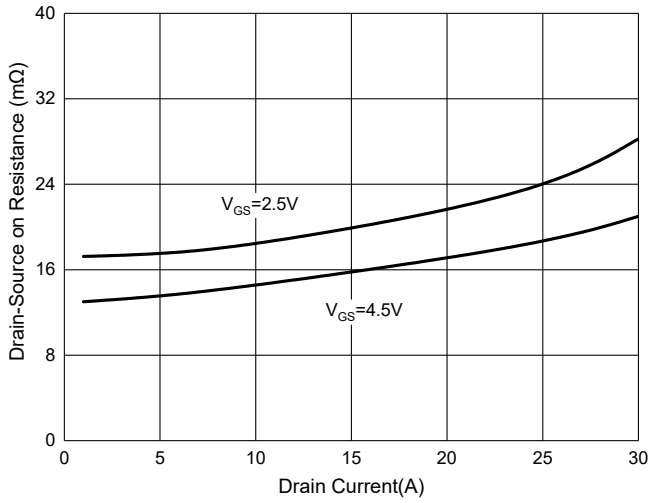


Fig. 4 - Normalized On Resistance Characteristics

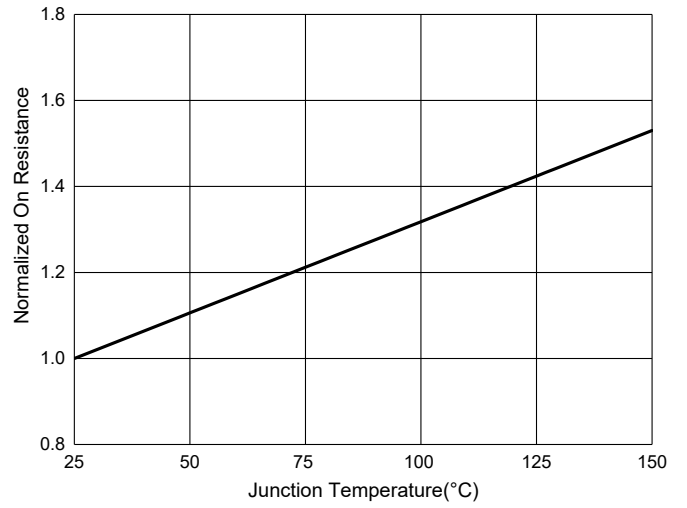


Fig. 5 - Capacitance Characteristics

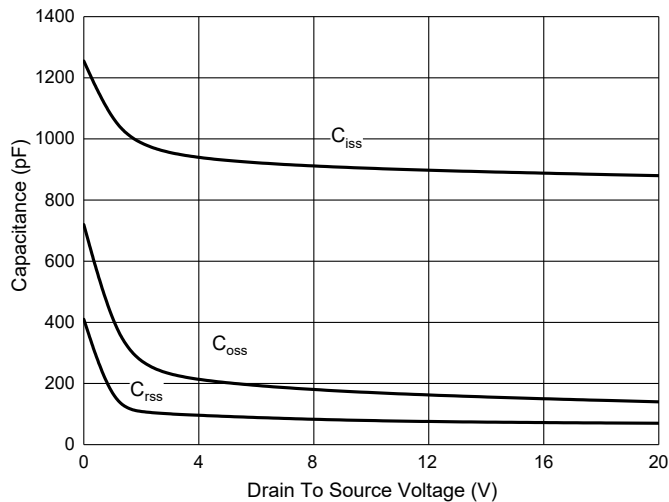
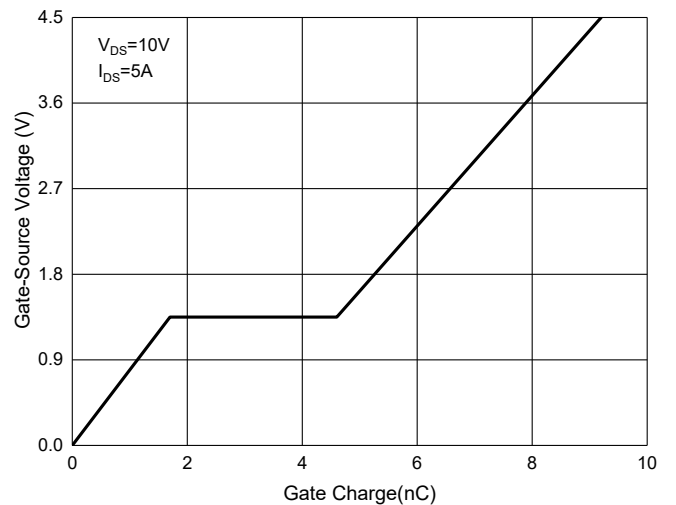
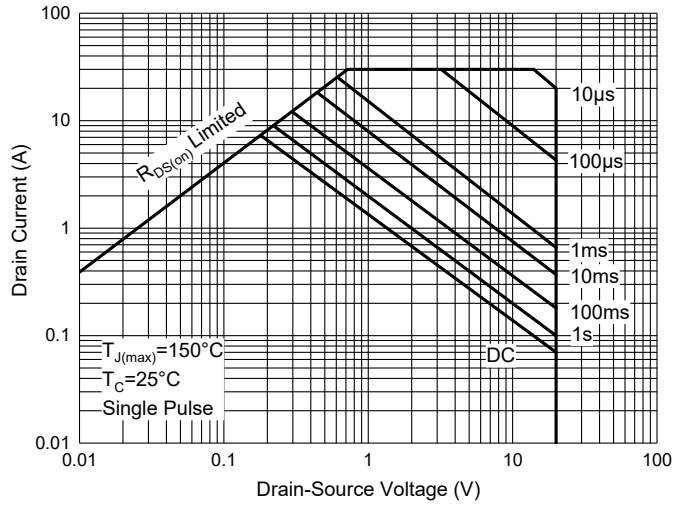


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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

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