

**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**

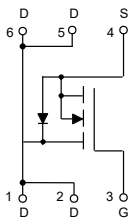
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 78°C/W Junction to Case<sup>(Note1)</sup>

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	$T_C=25^\circ\text{C}$	8
		$T_C=100^\circ\text{C}$	5.6
Pulsed Drain Current <sup>(Note2)</sup>	$I_{DM}$	32	A
Total Power Dissipation	$P_D$	1.6	W

Note 1. Surface Mounted on FR4 Board,  $t < 10$  sec.

2. Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature.

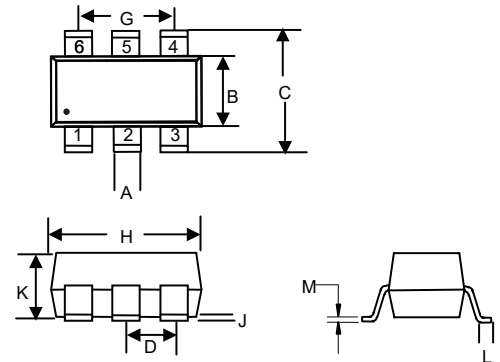
**Internal Structure**



Marking: 8N03

**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
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$			1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
<b>On Characteristics</b> <sup>(Note 3)</sup>						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.4	3	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=8A$		9	14	m $\Omega$
		$V_{GS}=4.5V, I_D=8A$		11	16	
Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=8A$		30		S
<b>Dynamic Characteristics</b> <sup>(Note 4)</sup>						
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		900		pF
Output Capacitance	$C_{oss}$			300		
Reverse Transfer Capacitance	$C_{rss}$			50		
<b>Switching Characteristics</b> <sup>(Note 4)</sup>						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DD}=25V, I_D=1A, R_{GEN}=6\Omega$		15		ns
Turn-On Rise Time	$t_r$			10		
Turn-Off Delay Time	$t_{d(off)}$			45		
Turn-Off Fall Time	$t_f$			12		
Total Gate Charge	$Q_g$	$V_{DS}=15V, I_D=8A, V_{GS}=5V$		13		nC
Gate-Source Charge	$Q_{gs}$			3.2		
Gate-Drain Charge	$Q_{gd}$			2.0		
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Drain-Source Diode Forward Current	$I_S$				8	A
Diode Forward Voltage <sup>(Note 3)</sup>	$V_{SD}$	$V_{GS}=0V, I_S=8A$			1.2	V

Note: 3. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

4. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 -  $R_{DS(ON)} - I_D$

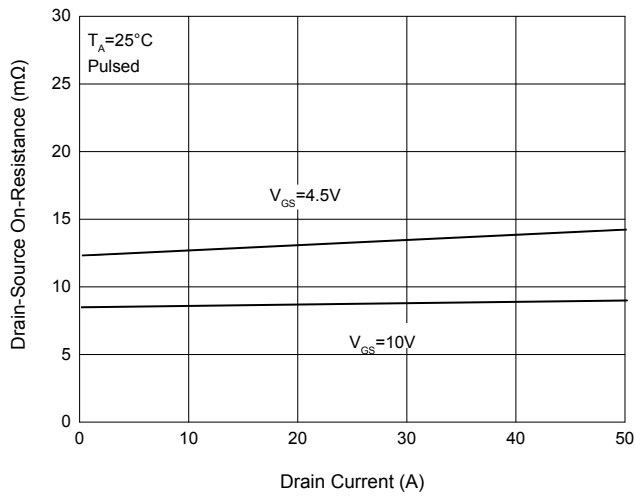


Fig. 2 - Transfer Characteristics

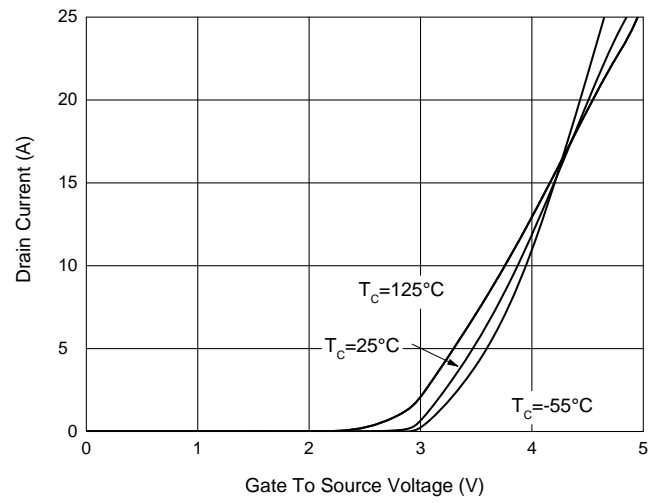


Fig. 3 - Gate Charge Characteristics

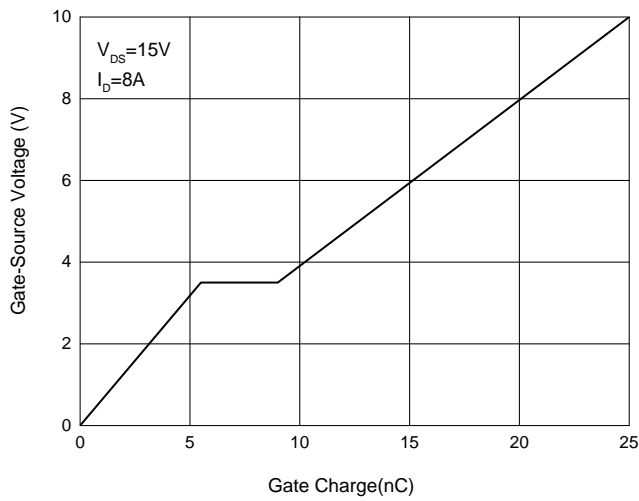


Fig. 4 -  $I_S - V_{SD}$

