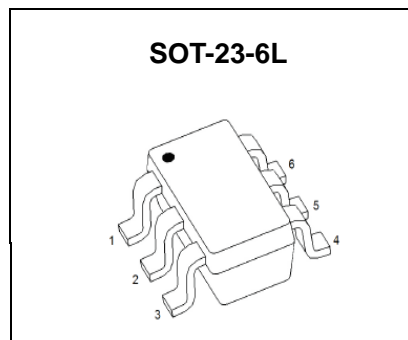


# P-Channel 20V(D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
- 20V	50mΩ@-4.5V	-4.0A
	60mΩ@-2.5V	
	73mΩ@-1.8V	



## FEATURE

Excellent  $R_{DS(ON)}$ , low gate charge, low gate voltage  
High power and current handling capability

## APPLICATION

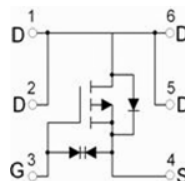
Load switch and in PWM applicatopns .

## MARKING:



PIN1

## Equivalent Circuit



## Maximum ratings ( $T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	±8	
Continuous Drain Current ( $t \leq 10s$ )	$I_D$	-5.5	A
Pulsed Drain Current (note1)	$I_{DM}$	-30	A
Maximum Power Dissipation ( $t \leq 5s$ ) note4 a.	$P_D$	2.20	W
Maximum Power Dissipation ( $t \leq 5s$ ) note4 b.		0.72	
Maximum Power Dissipation ( $t \leq 10s$ ) note4 b.		0.35	
Thermal Resistance from Junction to Ambient( $t=10s$ )	$R_{\theta JA}$	357	$^{\circ}C/W$
Operating Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 ~+150	$^{\circ}C$

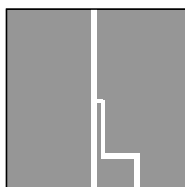
## MOSFET ELECTRICAL CHARACTERISTICS

Ta=25°C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static Parameters</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Gate threshold voltage (note2)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.3		-1	
Gate-body leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 8V$			$\pm 10$	$\mu A$
		$V_{DS} = 0V, V_{GS} = \pm 4.5V$			$\pm 1$	
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -16V, V_{GS} = 0V$			-1	
Drain-source on-state resistance(note2)	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -4A$		44	50	m $\Omega$
		$V_{GS} = -2.5V, I_D = -4A$		52	60	
		$V_{GS} = -1.8V, I_D = -2A$		64	73	
Forward transconductance(note2)	$g_{FS}$	$V_{DS} = -5V, I_D = -4A$	8	16		S
<b>Dynamic Parameters (note3)</b>						
Input capacitance	$C_{iss}$	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		1450		$\mu F$
Output capacitance	$C_{oss}$			205		
Reverse transfer capacitance	$C_{rss}$			160		
<b>Switching Parameters(note3)</b>						
Total gate charge	$Q_g$	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -4A$		17.2		nC
Gate-Source charge	$Q_{gs}$			1.3		
Gate-drain charge	$Q_{gd}$			4.5		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = -10V, V_{GS} = -4.5V$ $R_{GEN} = 3\Omega, R_L = 2.5\Omega,$		9.5		ns
Turn-on rise time	$t_r$			17		
Turn-off delay time	$t_{d(off)}$			94		
Turn-off fall time	$t_f$			35		
<b>Drain-Source Diode Characteristics</b>						
Drain-source diode forward voltage(note 2)	$V_{DS}$	$V_{GS} = 0V, I_S = -1A$			-1	V
Maximum continuous drain-source diode forward current	$I_S$				-4	A

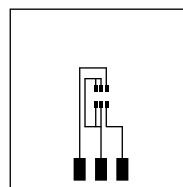
### Notes:

1. Repetitive rating, pulse width limited by junction temperature.
2. Pulse Test : Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
3. These parameters have no way to verify.
4. (a) Device mounted on a glass-epoxy board (a) (t= 5 s)  
(b) Device mounted on a glass-epoxy board (b) (t= 5 s)



(a)

FR-4  
25.4 × 25.4 × 0.8  
Unit: (mm)

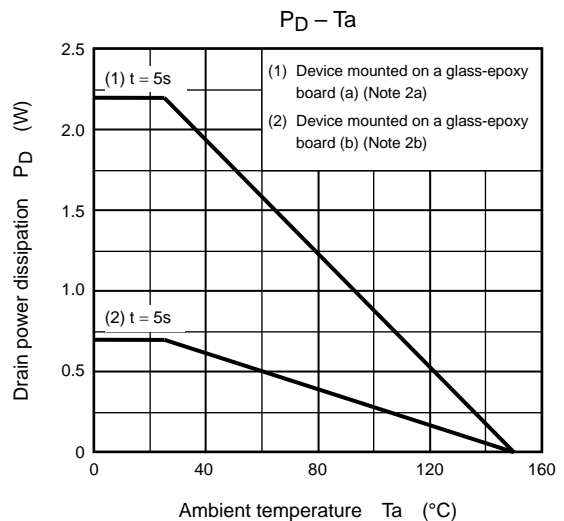
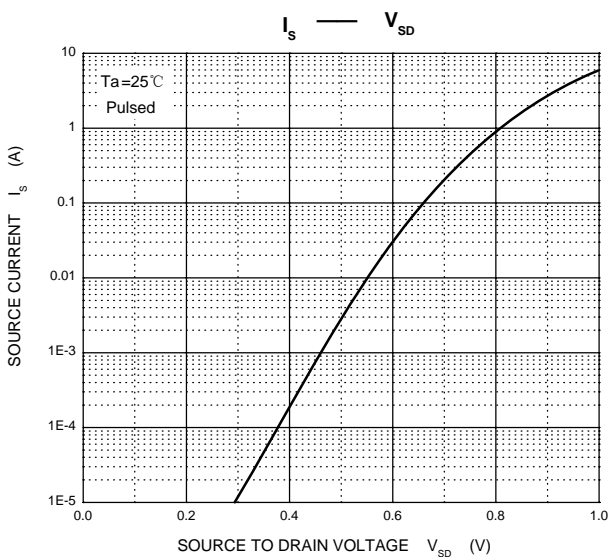
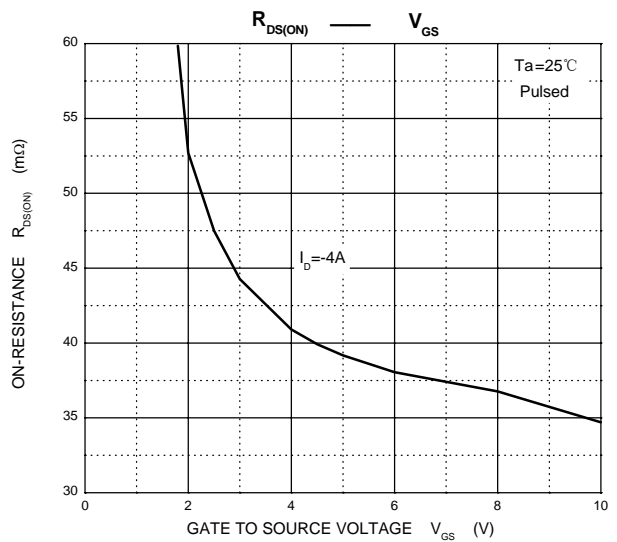
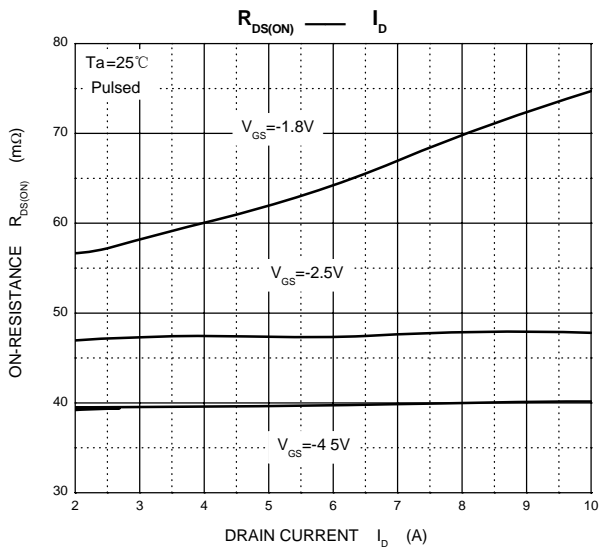
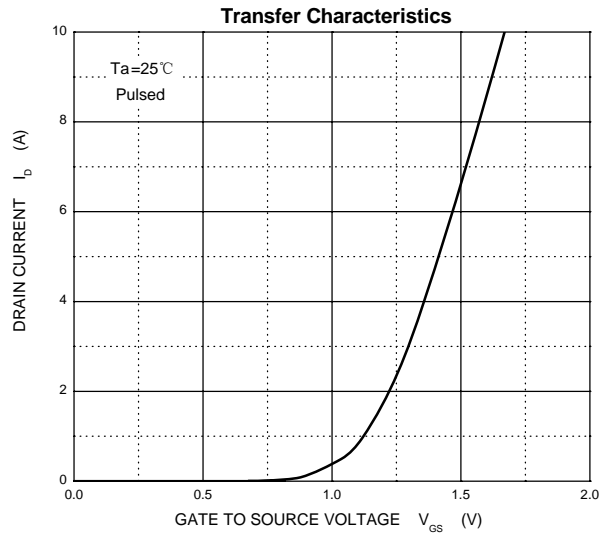
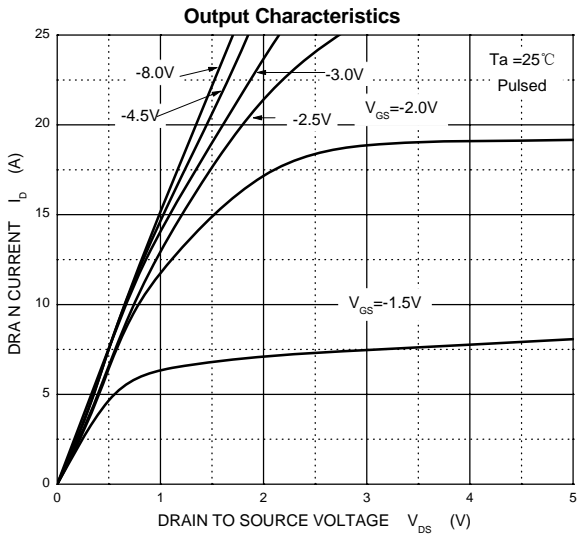


(b)

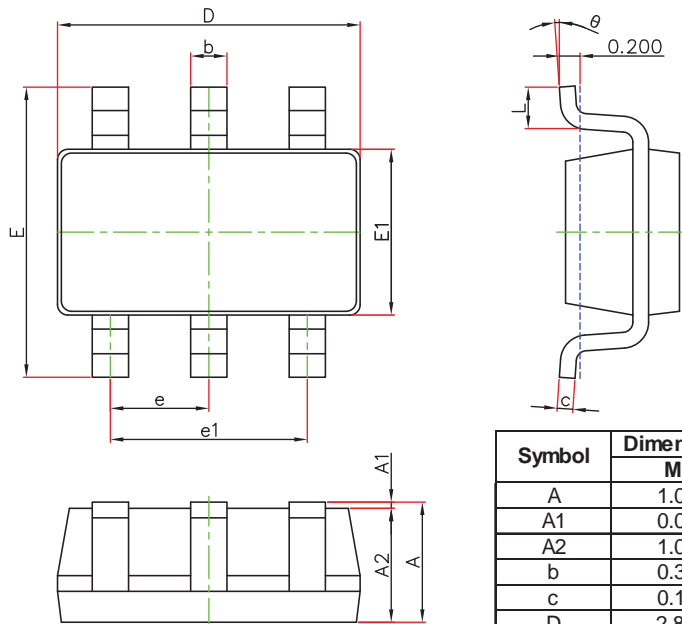
FR-4  
25.4 × 25.4 × 0.8  
Unit: (mm)



# TYPICAL ELECTRICAL CHARACTERISTICS

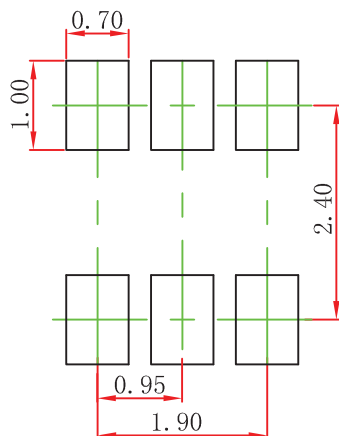


## SOT-23-6L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
$\theta$	0°	8°	0°	8°

## SOT-23-6L Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.