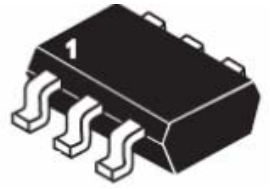
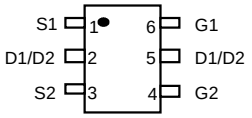
- 20V/5A
- $R_{DS(ON)}$=20mΩ (typ) @VGS=10V
  $R_{DS(ON)}$=26mΩ (typ) @VGS=4.5V
- 100% UIS & RG Tested
- Reliableand Rugged
- Lead Freeand Green Devices Available
  (RoHS Compliant)



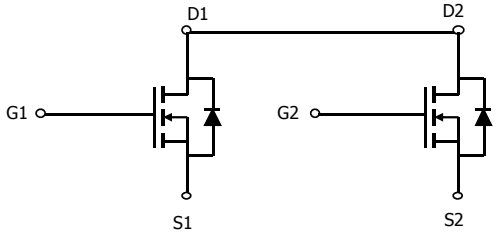
SOT23-6L top view

Top View



Applic

- Power Management for Industrial
  Converters



Absolute Maximum Ratings (T_A= 25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
Common Ratings			
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	±12	
I_D	Continuous Drain Current	5	A
I_{DM}[1]	Pulsed Drain Current	25	A
I_S[2]	Diode Continuous Forward Current	5	A
T_{STG}, T_j	Storage Temperature Range	-55 to 150	°C
P_D	Power Dissipation	1.25	W
$R_{\theta JA}$[2]	Thermal Resistance-Junction to Ambient	100	°C/w

Notes:

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

Electrical Characteristics (T_A= 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =16V, V_{GS}=0V	-	-	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS}, I_{DS}=250μA	0.5	-	1	V
I_{GSS}	Gate Leakage Current	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=4.5V, I_{DS}=6A	-	20	24	mΩ
		V_{GS}=2.5V, I_{DS}=5A	-	26	31	
g_{FS}	Forward Transconductance	V_{DS}=5V,I_D=5A		10		S
Body Diode Characteristics						
V_{SD} [3]	Diode Forward Voltage	I_{SD}=1A, V_{GS}=0V	0.5	-	1.3	V
Dynamic Characteristics [4]						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS} =10V, Frequency=1.0MHz	-	550	-	pF
C_{oss}	Output Capacitance		-	125	-	
C_{rss}	Reverse transfer capacitance		-	64	-	
$t_{d(ON)}$	Turn-on delay Time	V_{GS}=4.5V ,V_{DS}=10V R_G=10Ω, I_D=6A	-	9	-	nS
t_r	Turn-on rise Time		-	10	-	
$t_{d(OFF)}$	Turn-off delay Time		-	32	-	
t_f	Turn-off rise Time		-	24	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DS} =10V, V_{GS}=4.5V, I_{DS}=6A	-	9.5	-	nC
Q_{gs}	Gate-Source Charge		-	2.1	-	
Q_{gd}	Gate-Drain Charge		-	1.4	-	

Notes:

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

Typical Electrical and Thermal Characteristics

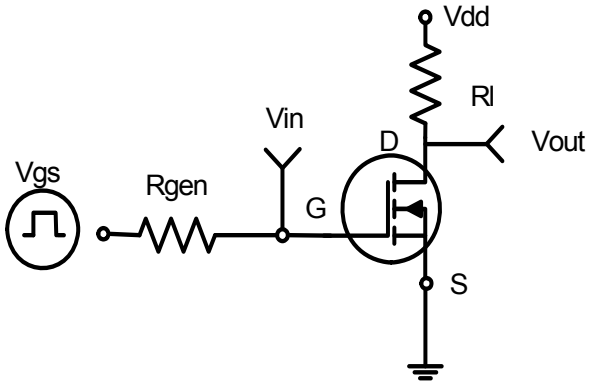


Figure 1:Switching Test Circuit

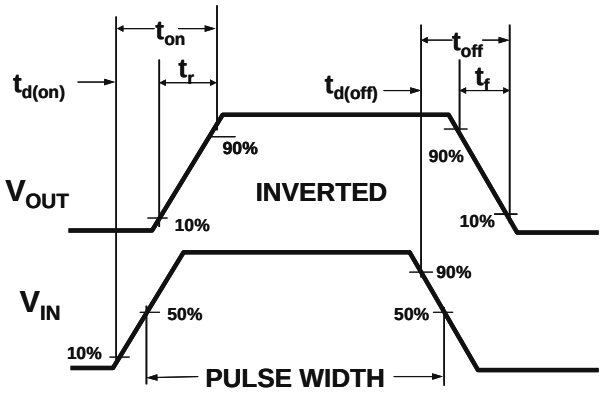


Figure 2:Switching Waveforms

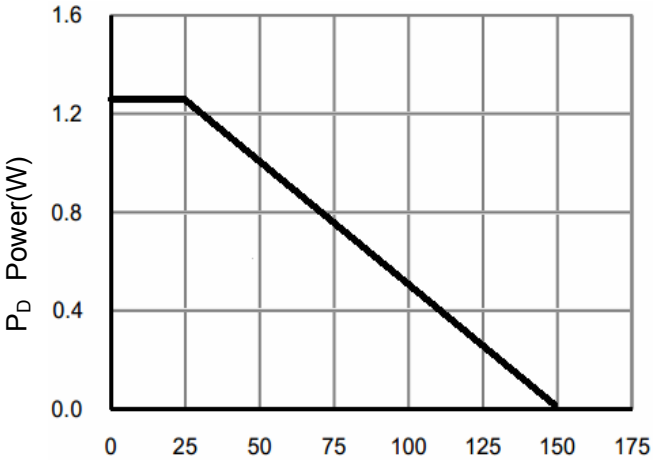


Figure 3 Power Dissipation

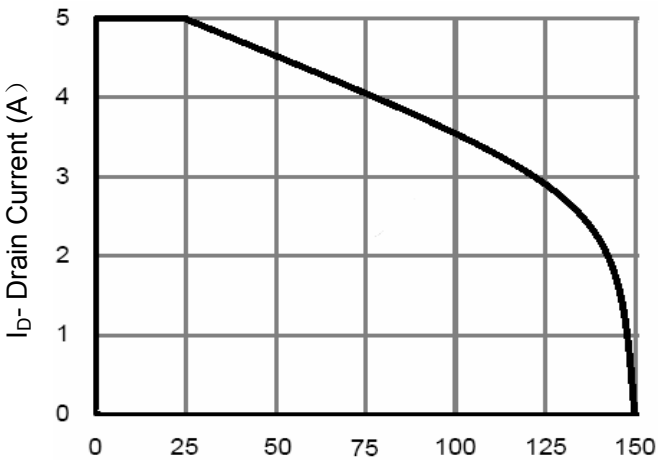


Figure 4 Drain Current

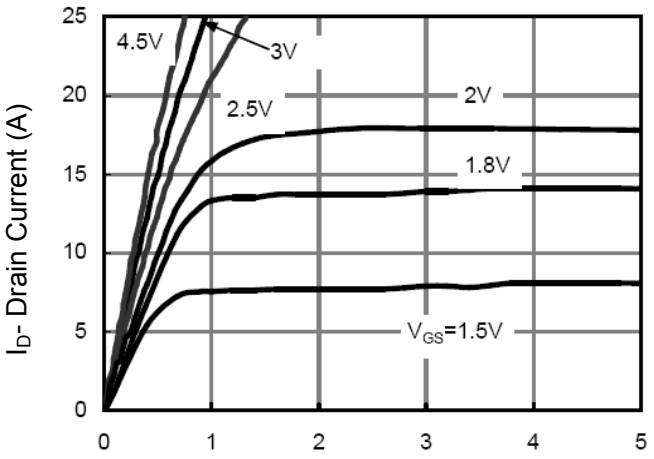


Figure 5 Output Characteristics

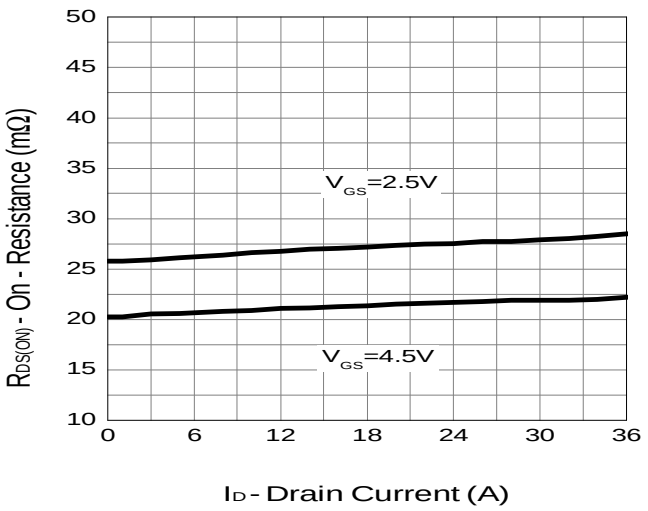


Figure 6 Drain-Source On-Resistance

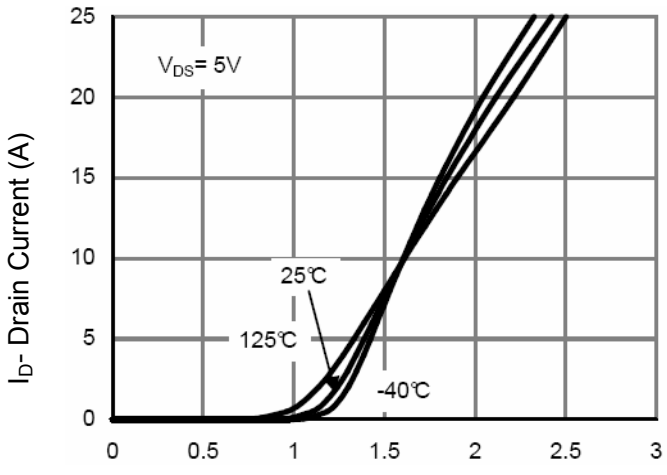


Figure 7 Transfer Characteristics

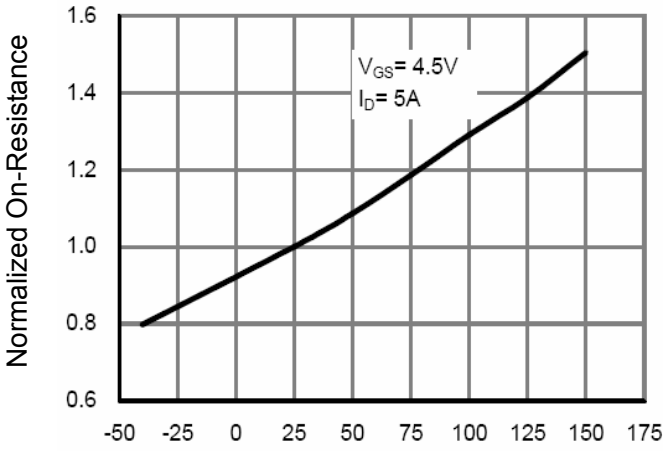


Figure 8 Drain-Source On-Resistance

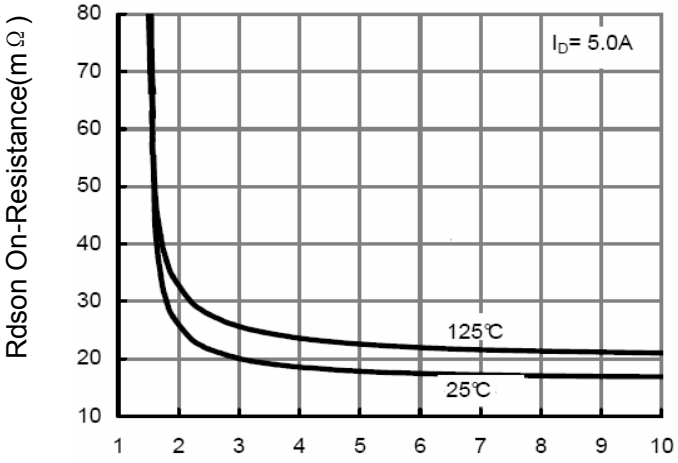


Figure 9 Rdson vs Vgs

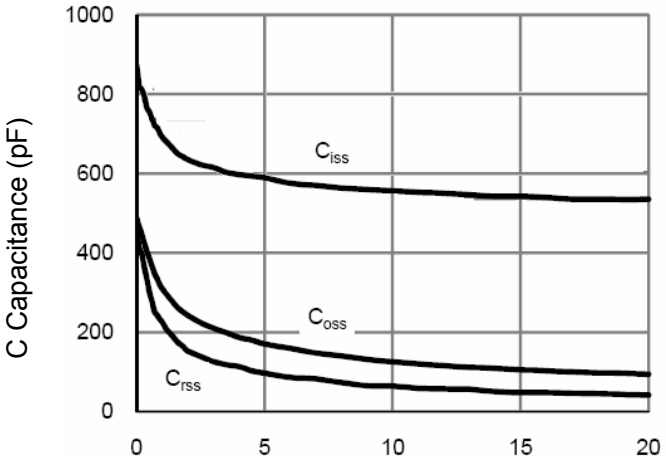


Figure 10 Capacitance vs Vds

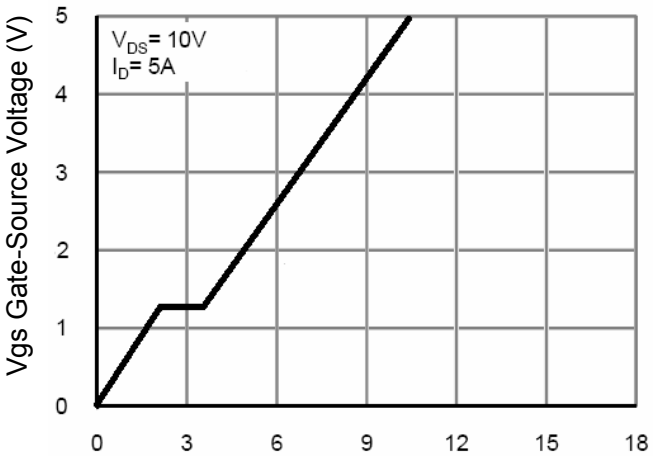


Figure 11 Gate Charge

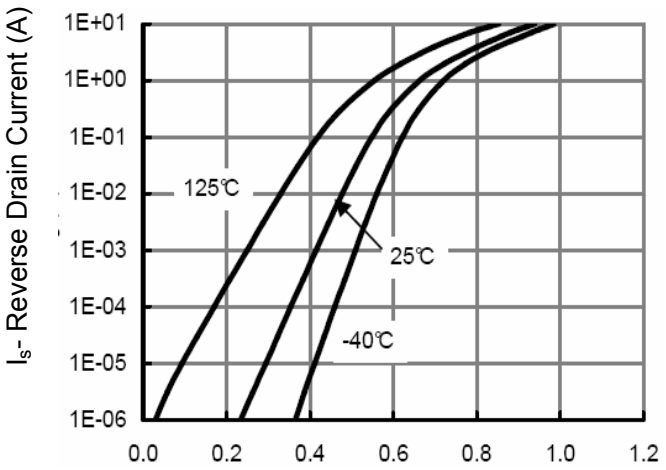


Figure 12 Source- Drain Diode Forward

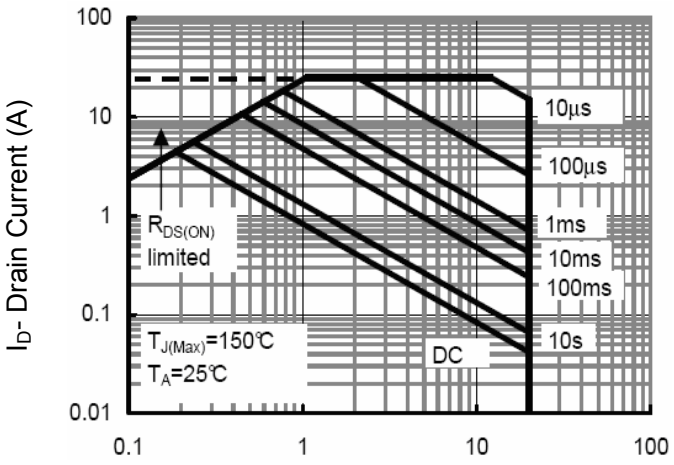


Figure 13 Safe Operation Area

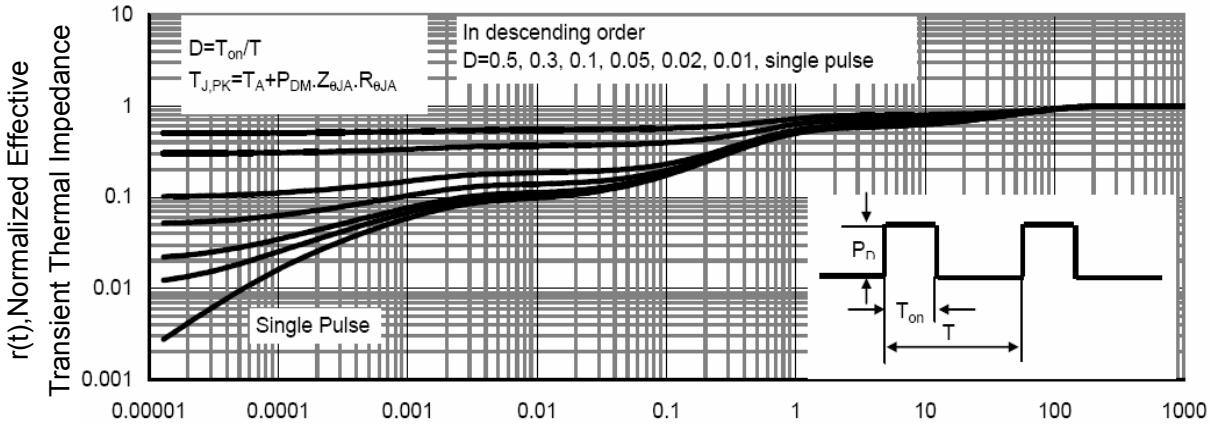
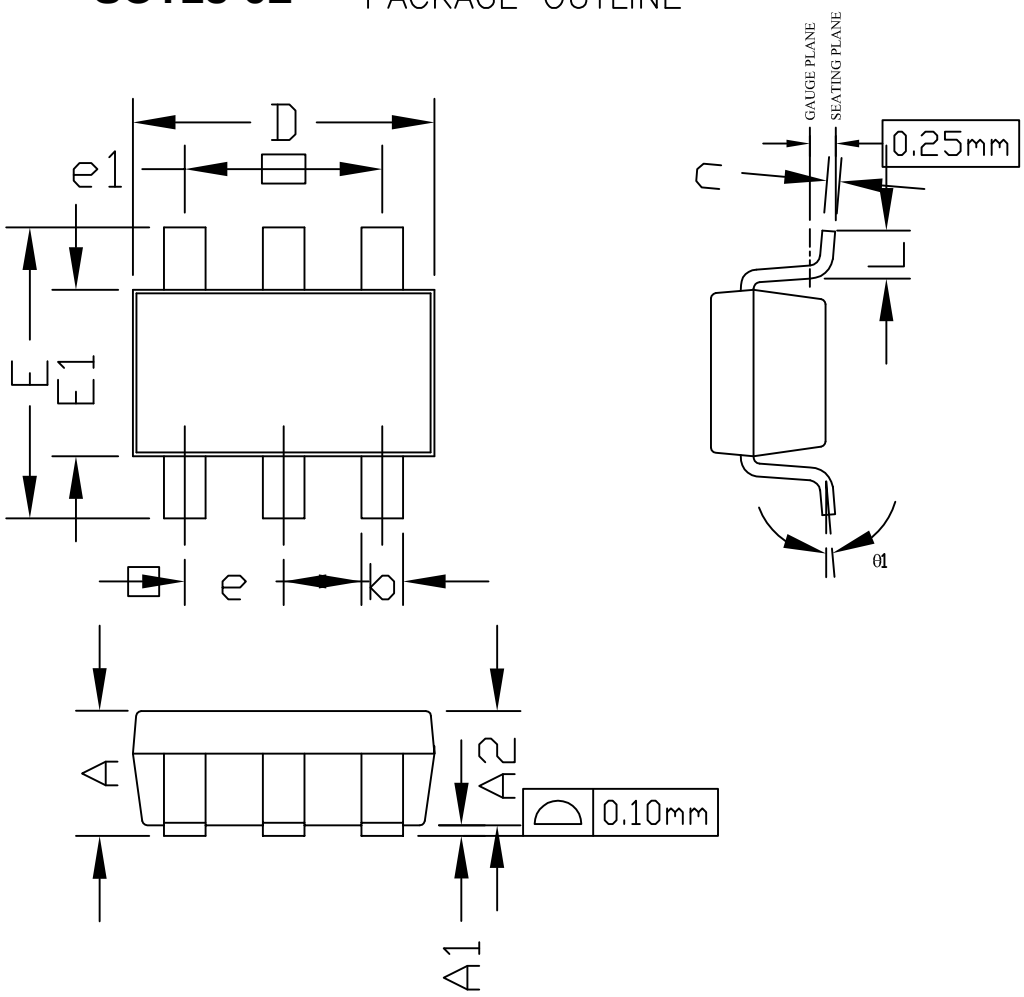
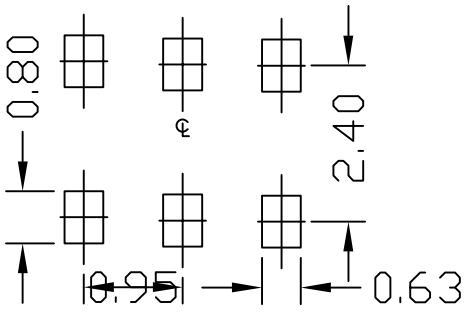


Figure 14 Normalized Maximum Transient Thermal Impedance

SOT23-6L PACKAGE OUTLINE



RECOMMENDED LAND PATTERN



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	——	1.25	0.031	——	0.049
A1	0.00	——	0.15	0.000	——	0.006
A2	0.70	1.10	1.20	0.028	0.043	0.047
b	0.30	0.40	0.50	0.012	0.016	0.020
c	0.08	0.13	0.20	0.003	0.005	0.008
D	2.70	2.90	3.10	0.106	0.114	0.122
E	2.50	2.80	3.10	0.098	0.110	0.122
E1	1.50	1.60	1.70	0.059	0.063	0.067
e	0.95 BSC.			0.037BSC.		
e1	1.90 BSC.			0.075 BSC.		
L	0.30	——	0.60	0.012	——	0.024
θ1	0°	——	8°	0°	——	8°

UNIT: mm

NOTE
1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
   MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 5 MILS EACH.
2. DIMENSION "L" IS MEASURED IN GAUGE PLANE.
3. TOLERANCE ±0.100 mm(4 mil) UNLESS OTHERWISE SPECIFIED.
4. FOLLOWED FROM JEDEC MO-178C & MO-193C.
5. CONTROLLING DIMENSIONS IS MILLIMETER.
   CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.