

### Features

- High Blocking Voltage with Low On-Resistance
- High Speed Switching with Low Capacitances
- Easy to Parallel and Simple to Drive
- Avalanche Ruggedness
- Halogen Free, RoHS Compliant

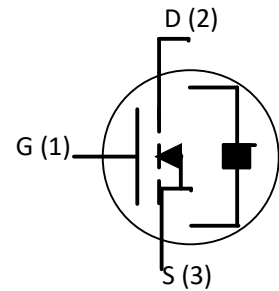
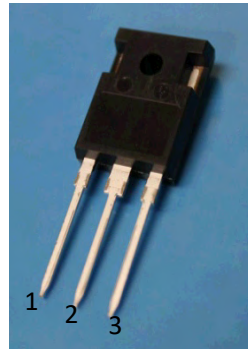
### Benefits

- Higher System Efficiency
- Reduced Cooling Requirements
- Increased Power Density
- Increased System Switching Frequency

### Applications

- Solar Inverters
- Switch Mode Power Supplies
- High Voltage DC/DC Converters
- Battery Chargers
- Motor Drives
- Pulsed Power applications

### Package



### Maximum Ratings ( $T_c = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
$V_{DSmax}$	Drain - Source Voltage	1200	V	$V_{GS}=0V, I_D=100\mu A$	
$V_{GSmax}$	Gate - Source Voltage	-10/+25	V	Absolute maximum values	
$V_{GSop}$	Gate - Source Voltage	-5/+20	V	Recommended operational values	
$I_D$	Continuous Drain Current	28 20	A	$V_{GS}=20V, T_c=25^\circ\text{C}$ $V_{GS}=20V, T_c=100^\circ\text{C}$	
$P_D$	Power Dissipation	166	W	$T_c=25^\circ\text{C}, T_J=150^\circ\text{C}$	Fig. 10
$T_J, T_{stq}$	Operating Junction and Storage Temperature	-55 to +150	$^\circ\text{C}$		

**Maximum Ratings** ( $T_c = 25^\circ\text{C}$  unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note		
$V_{DSmax}$	Drain - Source Voltage	1200	V	$V_{GS}=0V, I_D=100\mu A$			
	Voltage						
$V_{GS(th)}$	Gate Threshold Voltage	1.8	2.9	4.0	V	$V_{GS}=V_{DS}, I_{DS}=5mA, T_c=25^\circ\text{C}$	Fig. 6
			1.60			$V_{GS}=V_{DS}, I_{DS}=5mA, T_c=150^\circ\text{C}$	
$I_{DSS}$	Zero Gate Voltage Drain Current	2	100		$\mu A$	$V_{DS}=1200V, V_{GS}=0V$	
$I_{GSS}$	Gate-Source Leakage Current	50	200		nA	$V_{GS}=20V, V_{DS}=0V$	
$R_{DS(on)}$	Drain-Source on-state Resistance	105	125		m $\Omega$	$V_{GS}=20V, I_D=20A, T_c=25^\circ\text{C}$	Fig. 4
		130				$V_{GS}=20V, I_D=20A, T_c=150^\circ\text{C}$	
$g_{fs}$	Transconductance	5.6			S	$V_{GS}=20V, I_D=20A, T_J=25^\circ\text{C}$	Fig. 5
		5.8				$V_{GS}=20V, I_D=20A, T_J=150^\circ\text{C}$	
$C_{iss}$	Input Capacitance	1710			pF	$V_{GS}=0V, V_{DS}=1000V, f=1MHz$ $V_{AC}=25mV$	Fig. 8
$C_{oss}$	Output Capacitance	54					
$C_{rss}$	Reverse Transfer Capacitance	37					
$E_{ON}$	Turn-On Switching Energy	180			$\mu J$	$V_{DS}=800V, V_{GS}=-5/20V, I_D=20A,$ $R_{G(ext)}=5\Omega, L=142\mu H$	
$E_{OFF}$	Turn-Off Switching Energy	70					
$t_{d(on)}$	Turn-On Delay Time	23			ns	$V_{DD}=800V, V_{GS}=-5/20V$ $I_D=20A, R_{G(ext)}=5\Omega,$ $R_L=40\Omega, \text{Timing relative to } V_{DS}$	
$t_r$	Rise Time	60					
$t_{d(off)}$	Turn-Off Delay Time	17					
$t_f$	Fall Time	12					
$R_{G(int)}$	Internal Gate Resistance	2.8			$\Omega$	$f=1MHz, V_{AC}=25mV$	
$Q_{gs}$	Gate to Source Charge	23			nC	$V_{DD}=800V, V_{GS}=-5/20V$ $I_D=20A$	Fig. 9
$Q_{gd}$	Gate to Drain Charge	26					
$Q_g$	Total Gate Charge	85					

**Reverse Diode Characteristics**

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
$V_{SD}$	Diode Forward Voltage	4.0		V	$V_{GS}=-5V, I_{SD}=8A, T_J=25^\circ\text{C}$	Fig. 7
		3.5		V	$V_{GS}=-5V, I_{SD}=8A, T_J=150^\circ\text{C}$	
$I_S$	Continuous Diode Forward Current		12	A	$T_c=25^\circ\text{C}$	

**Thermal Characteristics**

Symbol	Parameter	Typ.	Unit	Test Conditions	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.75	$^\circ\text{C/W}$		Fig. 11
$R_{\theta JA}$	Thermal Resistance From Junction to Ambient	35			

### Typical Performance

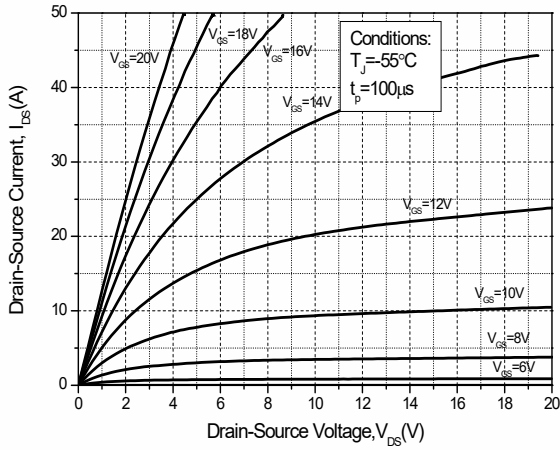


Figure 1. Output Characteristics  $T_J = -55^\circ\text{C}$

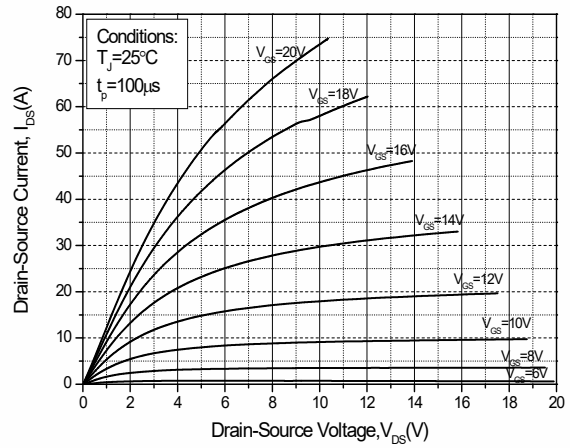


Figure 2. Output Characteristics  $T_J = 25^\circ\text{C}$

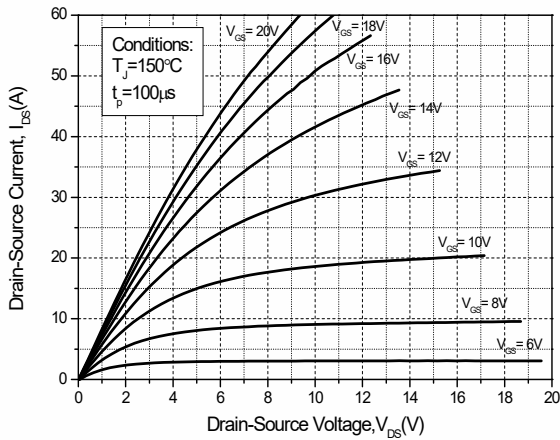


Figure 3. Output Characteristics  $T_J = 175^\circ\text{C}$

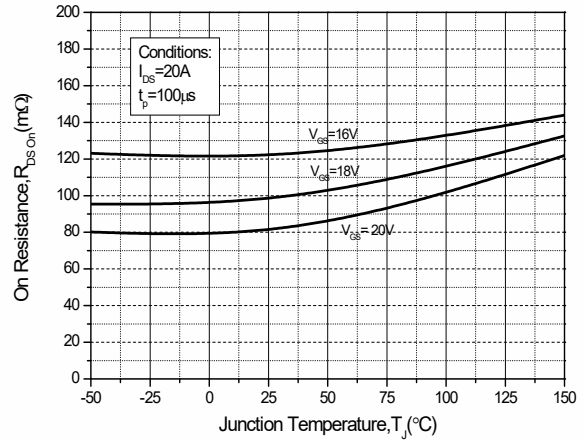


Figure 4. On-Resistance For Various Gate Voltage

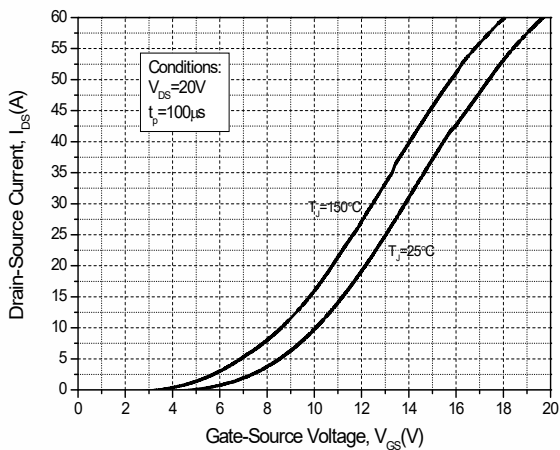


Figure 5. Transfer Characteristic for Various Junction Temperatures

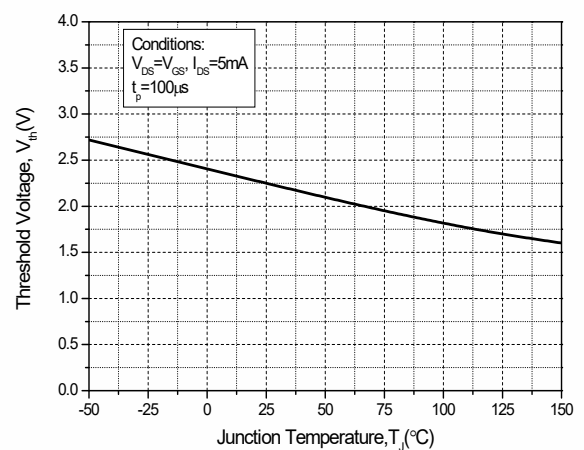


Figure 6. Threshold Voltage vs. Temperature

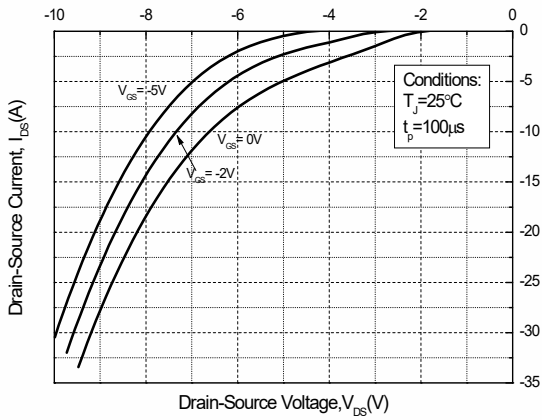


Figure 7. Body Diode Characteristics

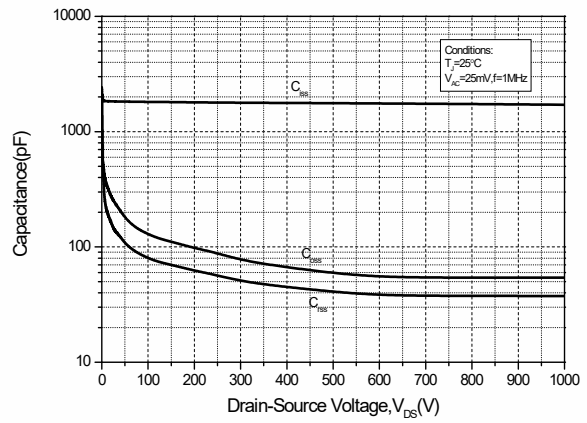


Figure 8. Capacitances vs. Drain-Source Voltage

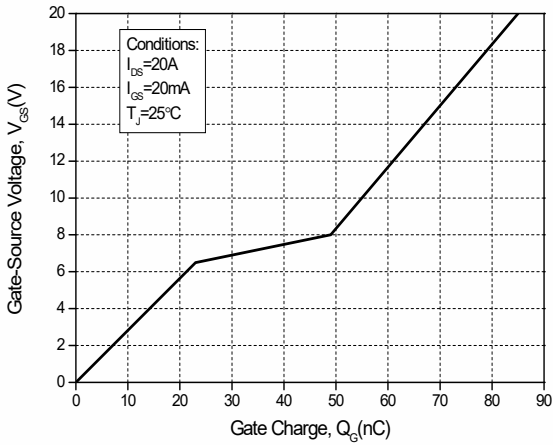


Figure 9. Gate Charge Characteristics

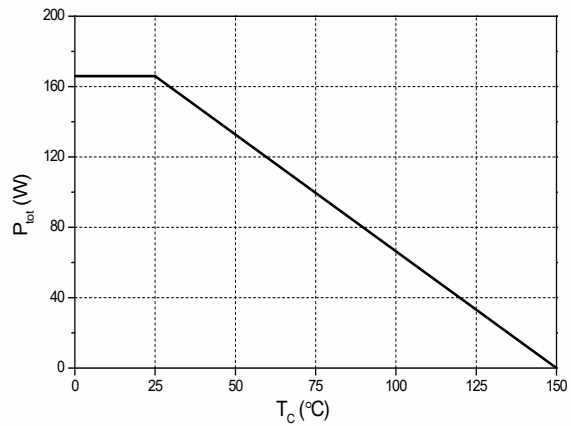


Figure 10. Power Dissipation Derating

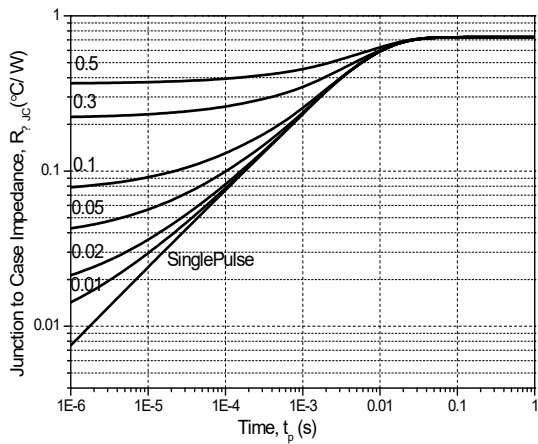
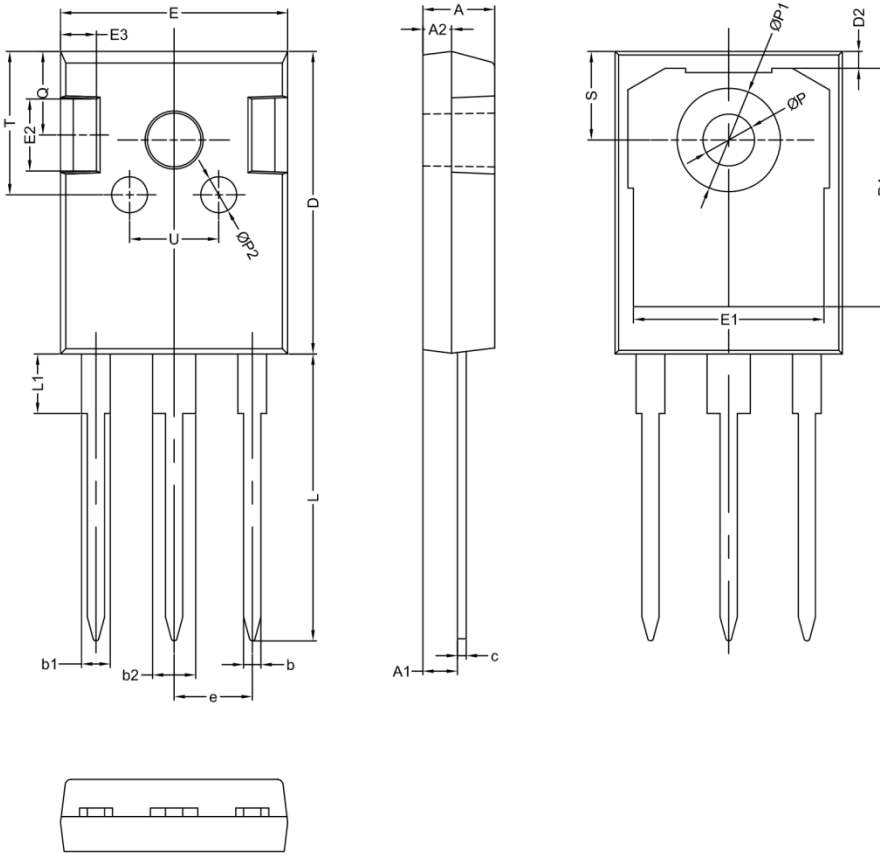


Figure 11. Transient Thermal Impedance

Package Dimensions: TO-247-3L



符号	机械尺寸/mm		
	最小值	典型值	最大值
A	4.80	5.00	5.20
A1	2.21	2.41	2.61
A2	1.90	2.00	2.10
b	1.10	1.20	1.35
b1		2.00	
b2		3.00	
c	0.55	0.60	0.75
D	20.80	21.00	21.20
D1		16.55	
D2		1.20	
E	15.60	15.80	16.0
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.42
L1		4.13	
P	3.50	3.60	3.70
P1	-	-	7.40
P2		2.50	
Q		5.80	
S	6.05	6.15	6.25
T		10.00	
U		6.20	