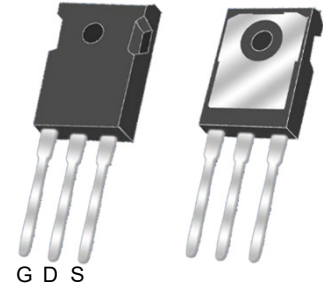


Description
MOSFET Product Summary

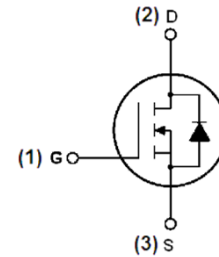
$V_{DS}(V)$	$R_{DS(on)}(m\Omega)$	$I_D(A)$
1200	75@ $V_{GS} = 18V$	38


TO-247-3L (Top View)
Feature

- High Blocking Voltage with Low On-Resistance
- High Speed Switching with Low Capacitances
- Avalanche Ruggednes

Applications

- Solar Inverters
- Switch Mode Power Supplies
- UPS
- Battery Chargers


Schematic diagram
Absolute maximum rating@25°C

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	1200	V
Gate-Source Voltage	V_{GS}	-4/+18	V
Gate-Source Voltage (Absolute maximum values)	V_{GSmax}	-8/+22	V
Continuous Drain Current	I_D	$T_C=25^\circ C$	38
		$T_C=100^\circ C$	27
Pulsed Drain Current	I_{DM}	80	A
Power Dissipation	P_D	214	W
Avalanche Energy, Single Pulse	E_{AS}	600	mJ
Operating Junction Temperature	T_J	-55 to +175	°C
Storage Temperature	T_{STG}	-55 to +175	°C

Thermal Resistance

Parameter	Symbol	Min	Typ	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	-	-	0.70	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	-	-	40	$^{\circ}\text{C}/\text{W}$

Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Statistic Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 100\mu\text{A}$	1200	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 1200V, V_{GS} = 0V$ $T_C = 25^{\circ}\text{C}$	-	1.0	10	μA
		$V_{DS} = 1200V, V_{GS} = 0V$ $T_C = 175^{\circ}\text{C}$	-	5.0	-	
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = 18V, V_{DS} = 0V$	-	-	100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 5\text{mA}$	2.3	2.8	3.6	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = 18V, I_D = 20\text{A}$	-	75	85	m Ω
Transconductance	g_{fs}	$V_{DS} = 20V, I_D = 20\text{A}$	-	10	-	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 1000V, V_{GS} = 0V,$ $f = 1\text{MHz}, V_{AC} = 25\text{mV}$	-	920	-	pF
Output Capacitance	C_{oss}		-	57	-	
Reverse Transfer Capacitance	C_{rss}		-	3.9	-	
Turn-On Switching Energy	E_{on}	$V_{DS} = 800V, I_D = 20\text{A}$ $V_{GS} = -4/+15V,$ $R_G = 0\Omega, L = 120\mu\text{H}$	-	320	-	μJ
Turn-Off Switching Energy	E_{off}		-	49	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{DS} = 800V, I_D = 20\text{A}$ $V_{GS} = -4/+15V,$ $R_G = 0\Omega, L = 120\mu\text{H}$	-	19	-	ns
Turn-on Rise Time	t_r		-	21	-	
Turn-Off Delay Time	$t_{d(off)}$		-	15	-	
Turn-Off Fall Time	t_f		-	17	-	
Total Gate Charge	Q_g	$V_{DS} = 800V, I_D = 20\text{A},$ $V_{GS} = -4/+18V$	-	40	-	nC
Gate-Source Charge	Q_{gs}		-	7.0	-	
Gate-Drain Charge	Q_{gd}		-	19	-	
Gate Resistance	R_G	$f = 1\text{MHz}, V_{AC} = 25\text{mV}$	-	1.5	-	Ω
Reverse Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS} = -4V, I_{SD} = 10\text{A}$ $T_J = 25^{\circ}\text{C}$	-	4.2	-	V
		$V_{GS} = -4V, I_{SD} = 10\text{A}$ $T_J = 175^{\circ}\text{C}$	-	3.8	-	
Reverse Recovery Time	t_{rr}	$V_{DS} = 800V, V_{GS} = -4V,$ $I_{SD} = 20\text{A}, T_J = 150^{\circ}\text{C}$	-	41	-	ns
Reverse Recovery Charge	Q_{rr}	$di/dt = 700\text{A}/\mu\text{s}$	-	405	-	μC

Typical Characteristics

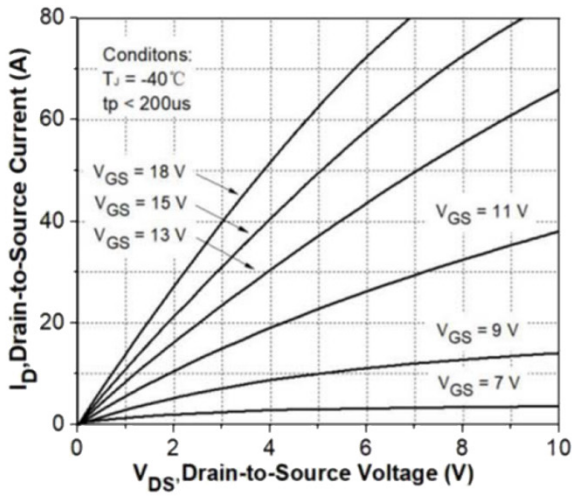


Fig 1. Output Characteristic ($T_J = -40^\circ\text{C}$)

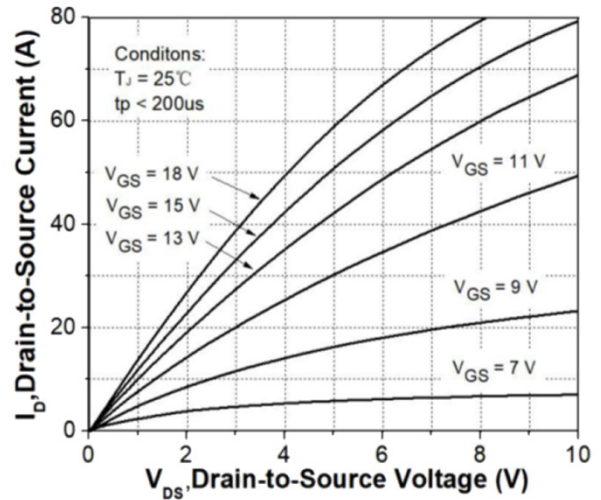


Fig 2. Output Characteristic ($T_J = 25^\circ\text{C}$)

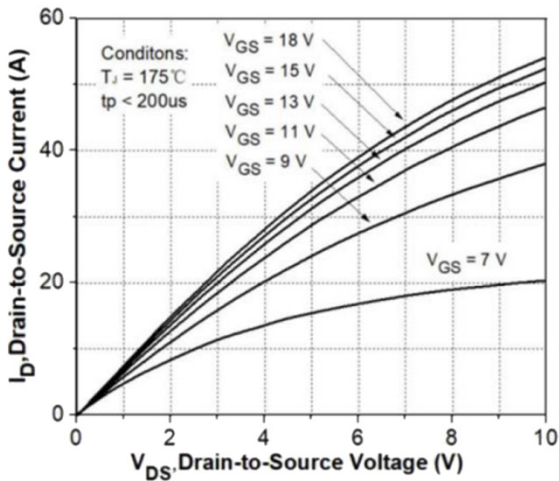


Fig 3. Output Characteristic ($T_J = 175^\circ\text{C}$)

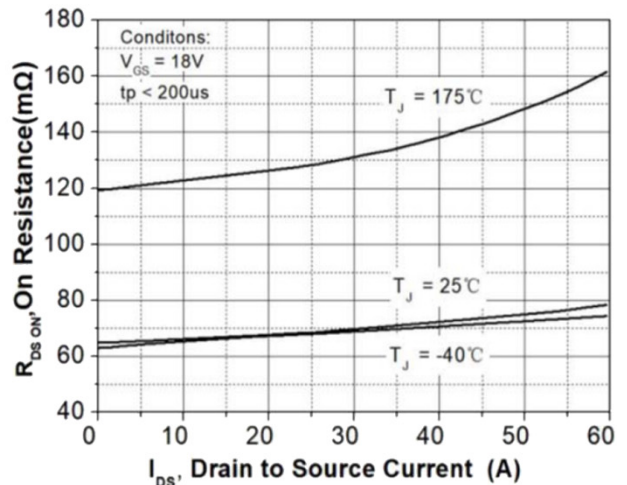


Fig 4: $R_{DS(on)}$ Vs I_{DS} Characteristic

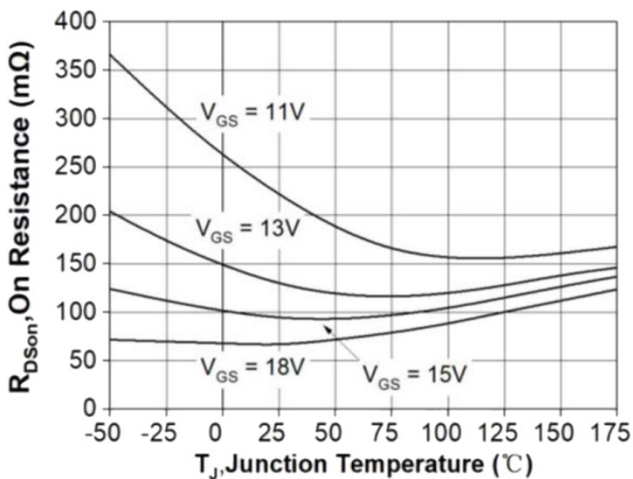


Fig 5: $R_{DS(on)}$ vs. Temperature

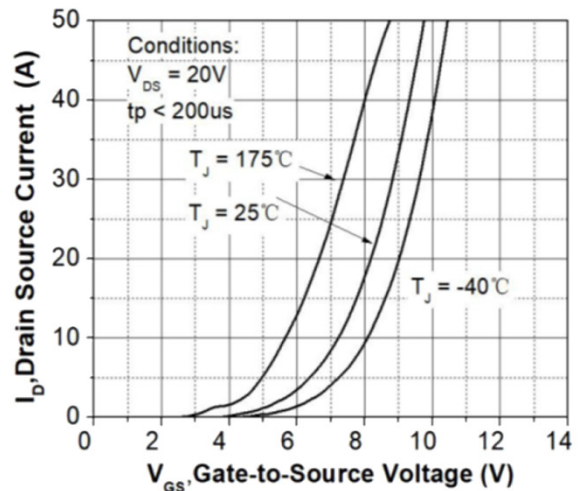


Fig 6: Transfer Characteristic

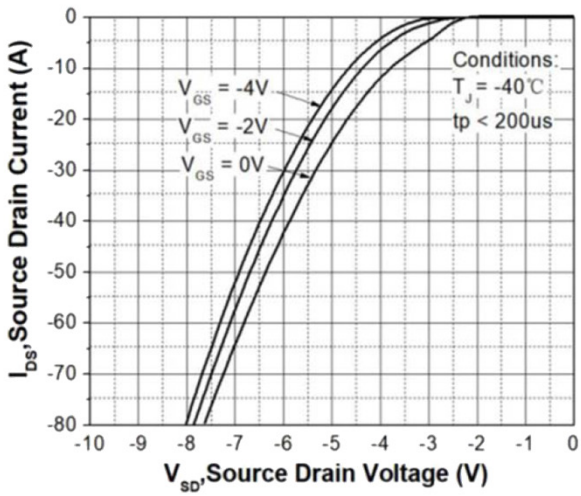


Fig 7: Body-diode Characteristic ($T_J = -40^\circ\text{C}$)

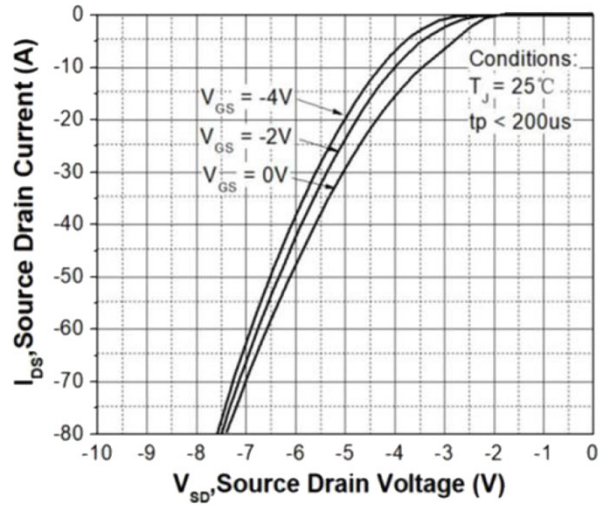


Fig 8: Body-diode Characteristic ($T_J = 25^\circ\text{C}$)

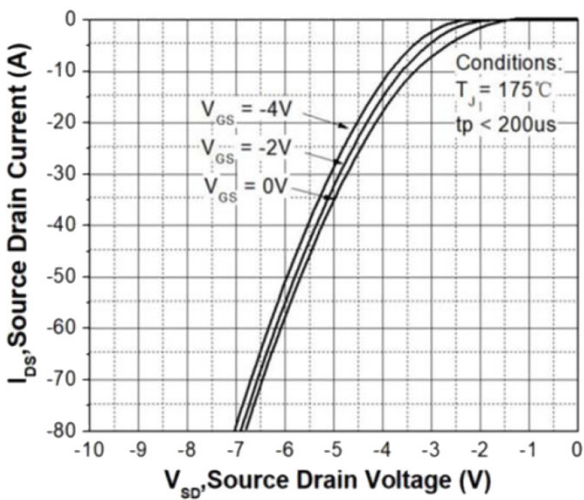


Fig 9: Body-diode Characteristic ($T_J = 175^\circ\text{C}$)

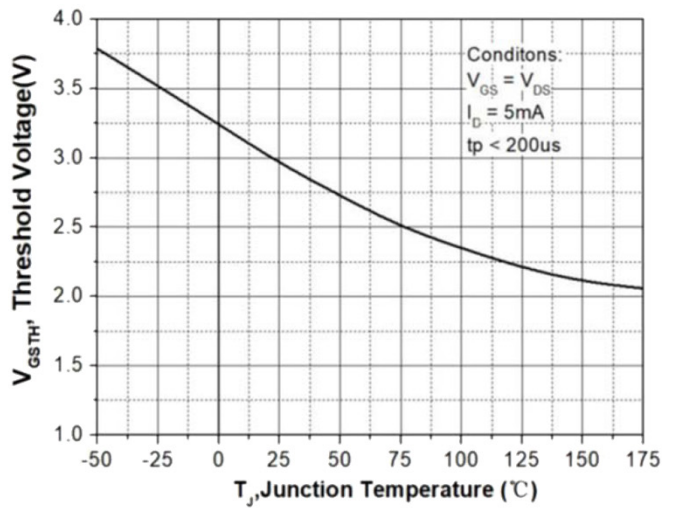


Fig 10: V_{TH} Vs T_J Temperature Characteristic

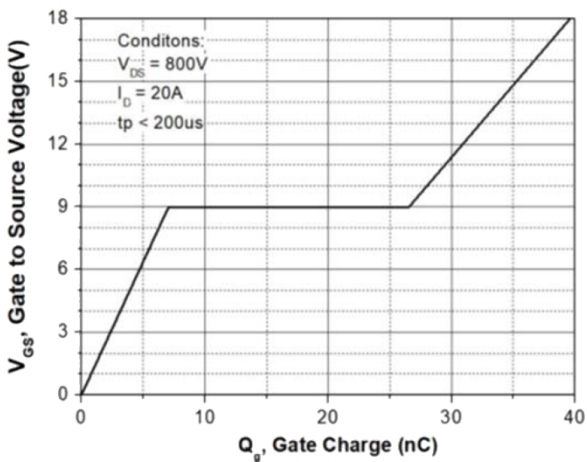


Fig 11: Gate Charge Characteristics

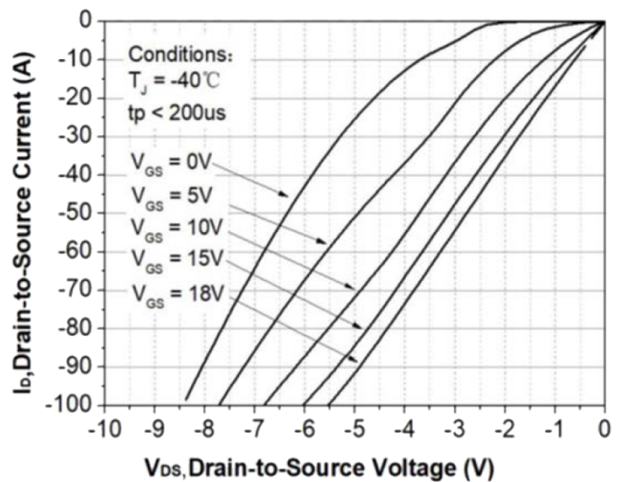


Fig 12: 3rd Quadrant Characteristic ($T_J = -40^\circ\text{C}$)

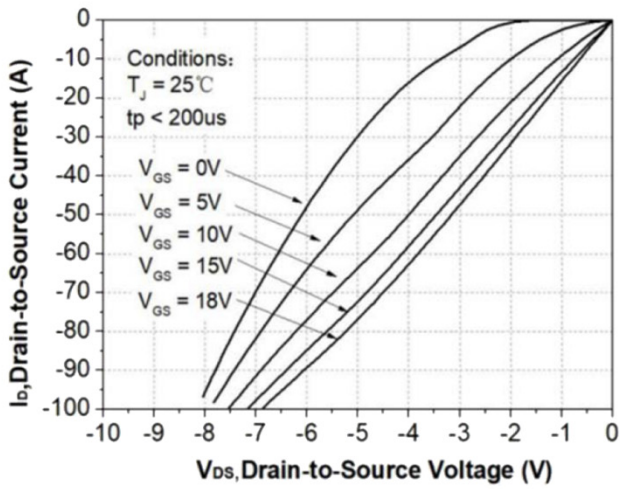


Fig 13: 3rd Quadrant Characteristic($T_J=25^\circ\text{C}$)

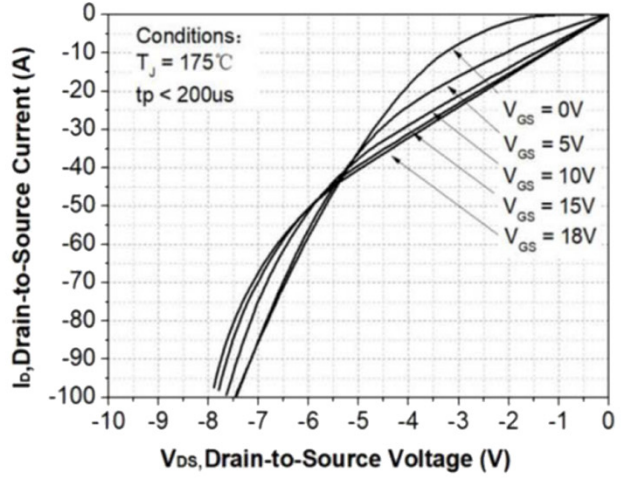


Fig 14: 3rd Quadrant Characteristic($T_J=175^\circ\text{C}$)

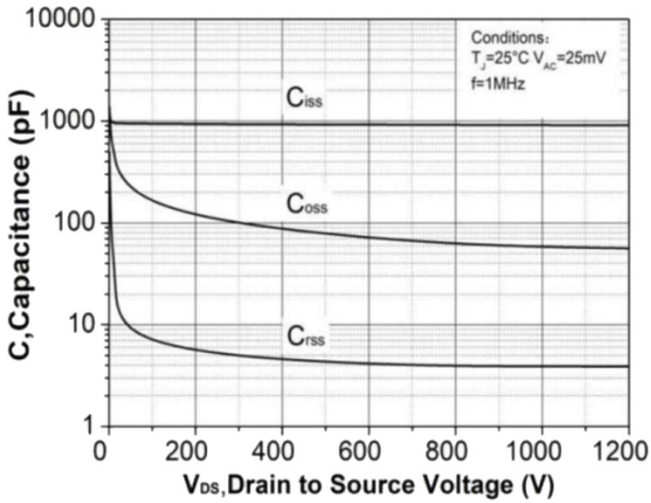


Fig 15: Capacitance Characteristic

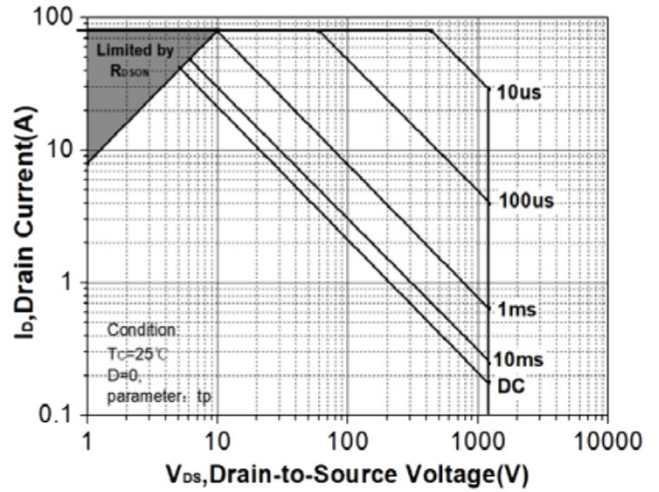


Fig 16: Safe Operating Area

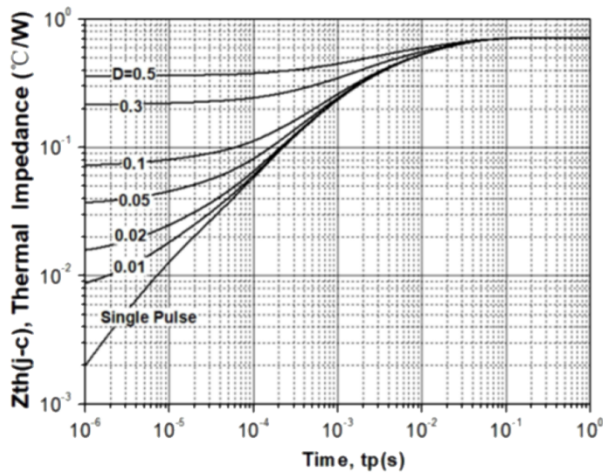
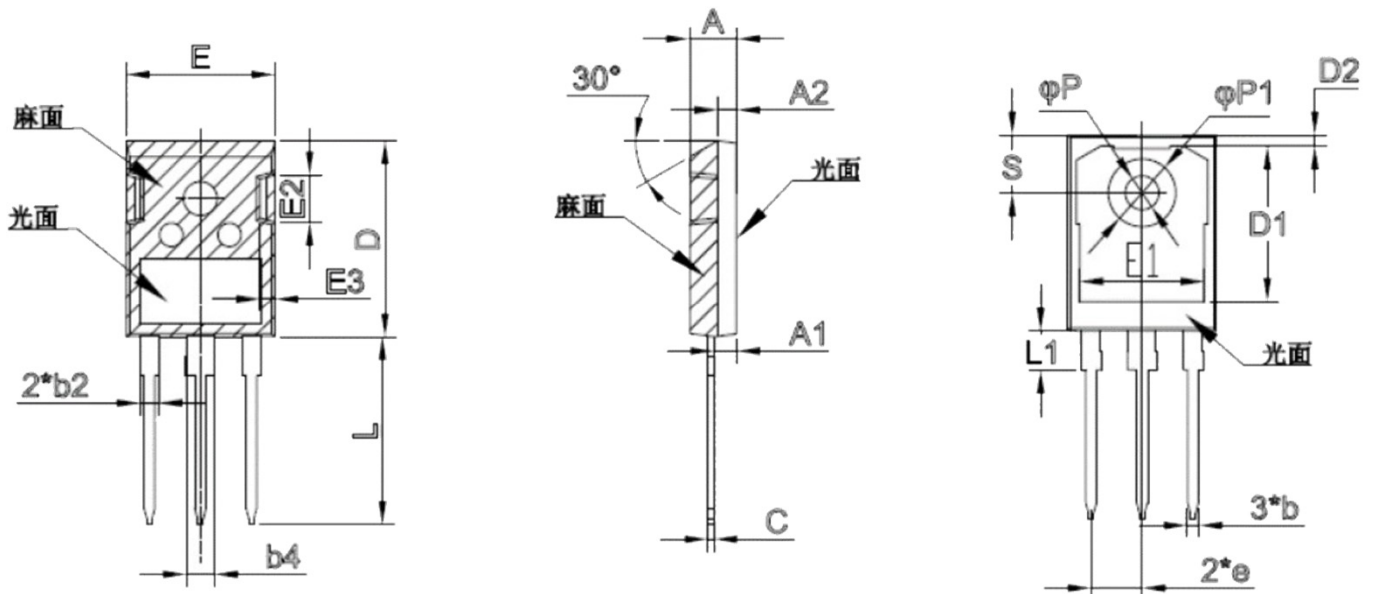



Fig 17: Transient Thermal Impedance

Product dimension (TO-247-3L)



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	4.70	5.20	0.185	0.205
A1	2.30	2.50	0.091	0.098
A2	1.90	2.10	0.075	0.083
b	1.10	1.30	0.043	0.051
b2	2.00 typ.		0.079 typ.	
b4	3.00 typ.		0.118 typ.	
C	0.50	0.70	0.020	0.028
D	20.80	21.10	0.819	0.831
D1	16.55 typ.		0.652 typ.	
D2	0.95	1.35	0.037	0.053
E	15.48	16.28	0.609	0.641
E1	13.06	13.56	0.514	0.534
E2	4.90	5.10	0.193	0.201
E3	1.50	1.70	0.059	0.067
e	5.34	5.54	0.210	0.218
L	19.80	20.32	0.780	0.800
L1	-	4.50	-	0.177
P	3.50	3.70	0.138	0.146
P1	7.00	7.40	0.276	0.291
S	6.04	6.30	0.238	0.248


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