

■ Features

- High speed power switching
- 100% UIS tested, 100% Rg tested
- Enhanced avalanche ruggedness
- Lead free, halogen free

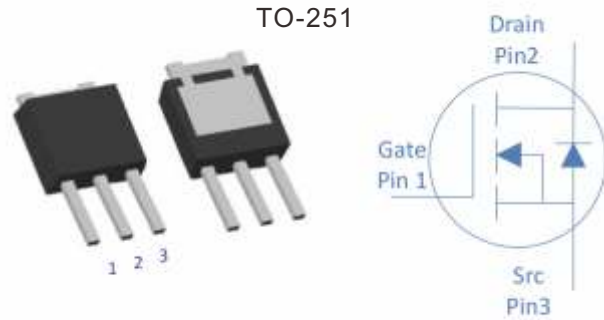
■ Application

- SMPS
- Hard switching and high speed circuit
- LED lighting
- Flyback

■ Main product characteristics

$V_{DS}$	600V
$R_{DS(on),max}$	580mΩ
$I_D$	7A

■ Pin Description



■ Absolute Maximum Ratings ( $T_A = 25^{\circ}C$  unless otherwise specified)

PARAMETER	CONDITIONS	Symbol	MJU07N60CT	UNIT
Continuous Drain Current	$T_c = 25^{\circ}C$	$I_D$	7	A
Drain to Source Voltage		$V_{DS}$	600	V
Gate to Source Voltage		$V_{GS}$	±30	V
Pulsed Drain Current		$I_{DM}$	18	A
Avalanche energy, single pulse	$L = 4.0mH, T_c = 25^{\circ}C$	$E_{AS}$	100	mJ
Power Dissipation	$T_c = 25^{\circ}C$	$P_D$	104	W
Operating and Storage Temperature		$T_J, T_{STG}$	-55 to 150	$^{\circ}C$

■ Absolute Maximum Ratings

PARAMETER	Symbol	MJU07N60CT	UNIT
Thermal Resistance Junction-case	$R_{thJC}$	1.2	$^{\circ}C/W$
Thermal Resistance Junction-Ambient	$R_{thJA}$	55	$^{\circ}C/W$

■ Electrical characteristics( $T_J = 25^\circ\text{C}$ unless otherwise specified)						
■ Static Characteristics						
PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Drain to Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	$V_{(BR)DSS}$	600	-	-	V
Gate Threshold Voltage	$V_{GS} = V_{DS}, I_D = 250\mu A$	$V_{GS(th)}$	2	3	4	
Zero Gate Voltage Drain Current	$V_{DS} = 600V, V_{GS} = 0V, T_J = 25^\circ\text{C}$	$I_{DSS}$	-	-	1	$\mu A$
	$V_{DS} = 600V, V_{GS} = 0V, T_J = 150^\circ\text{C}$		-	10	-	
Gate to Source Leakage Current	$V_{GS} = \pm 30V, V_{DS} = 0V$	$I_{GSS}$	-	-	$\pm 100$	nA
Drain to Source On Resistance	$V_{GS} = 10V, I_D = 3.5A$	$R_{DS(on)}$	-	520	580	m $\Omega$
Gate Resistance	$V_{GS} = 0V, V_{DS}$ open, $f = 1\text{MHz}$	$R_G$	-	2.9	-	$\Omega$
■ Dynamic Characteristics(note:5)						
PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Input Capacitance	$V_{DS} = 25V, V_{GS} = 0V, F = 1\text{MHz}$	$C_{iss}$	-	552	-	$\mu F$
Output Capacitance		$C_{oss}$	-	464	-	
Reverse Transfer Capacitance		$C_{rss}$	-	2.2	-	
Total Gate Charge	$V_{DD} = 480V, I_D = 3.5A, V_{GS} = 10V$	$Q_g$	-	10	-	nC
Gate to Source Charge		$Q_{gs}$	-	2.7	-	
Gate to Drain (Miller) Charge		$Q_{gd}$	-	2.6	-	
Turn on Delay Time	$V_{DD} = 400, I_D = 3.5A, V_{GS} = 10V, R_G = 10\Omega$	$t_{d(on)}$	-	27	-	ns
Rise Time		$t_r$	-	27	-	
Turn off Delay Time		$t_{d(off)}$	-	23	-	
Fall Time		$t_f$	-	22	-	
■ Reverse Diode Characteristics						
PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Diode Forward Voltage	$I_F = 3.5A, V_{GS} = 0V$	$V_{SD}$	-	0.9	-	V
Reverse Recovery Time	$V_R = 300V, I_F = 3.5A, di_F/dt = 100A/\mu s$	$t_{rr}$	-	190	-	ns
Reverse Recovery Charge		$Q_{rr}$	-	2.0	-	$\mu C$

Rating and characteristics curves

Fig 1. Typical Output Characteristics

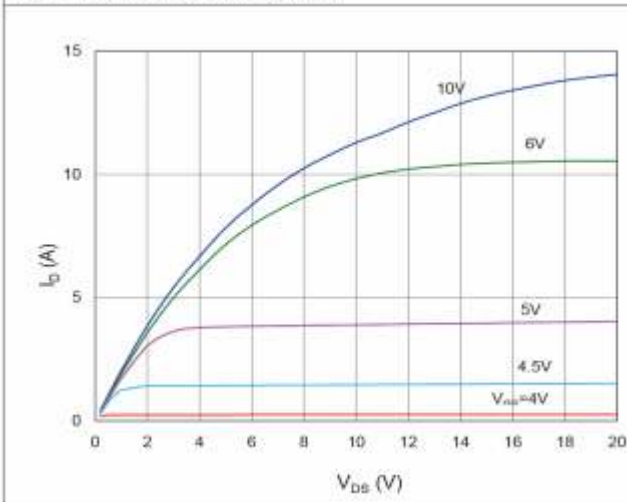


Figure 2. Normalized BV vs temperature

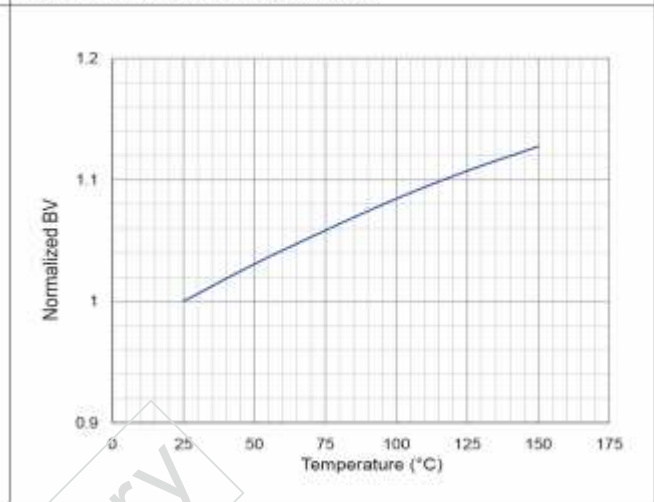


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

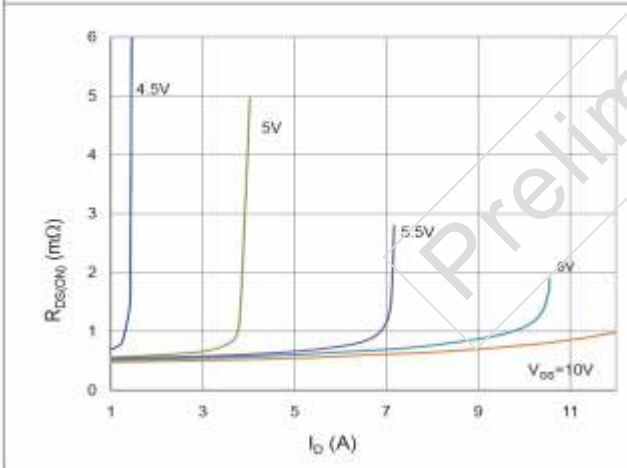


Figure 4. Normalized On-Resistance vs. Junction Temperature

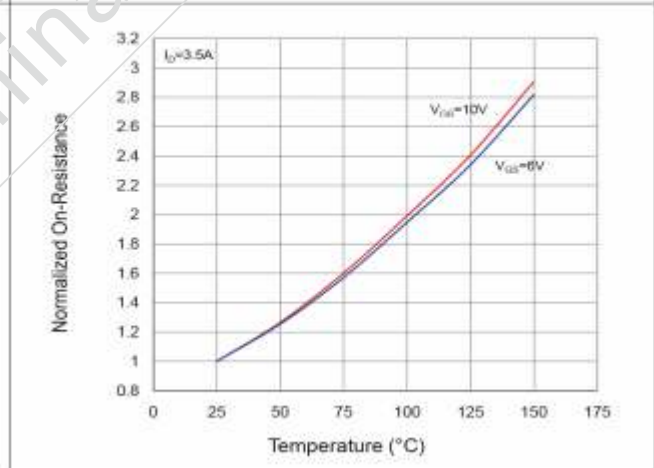


Figure 5. Typical Transfer Characteristics

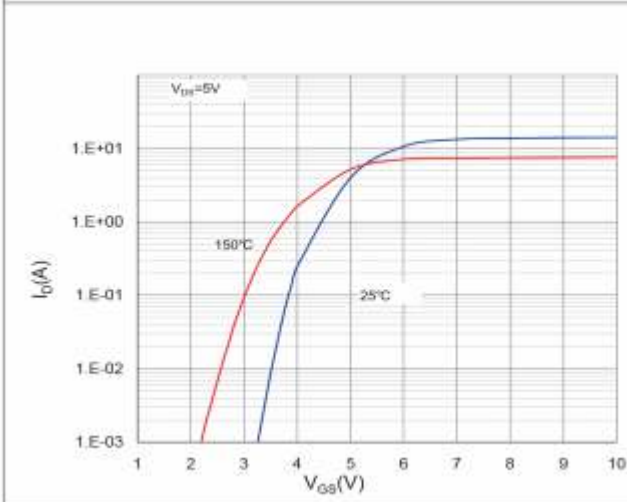
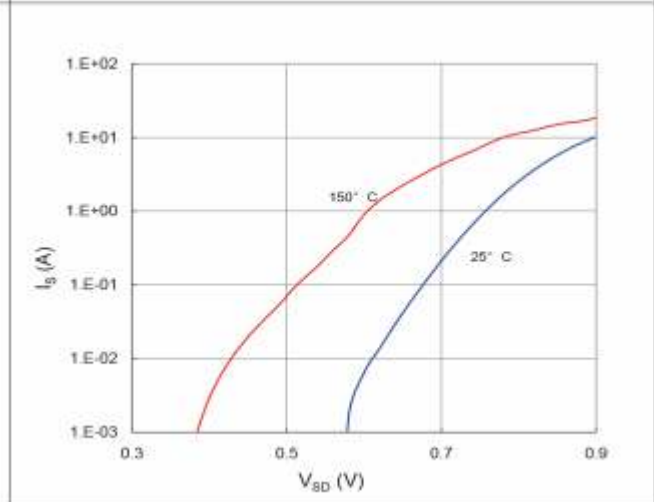


Figure 6. Typical Source-Drain Diode Forward Voltage



Rating and characteristics curves

Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

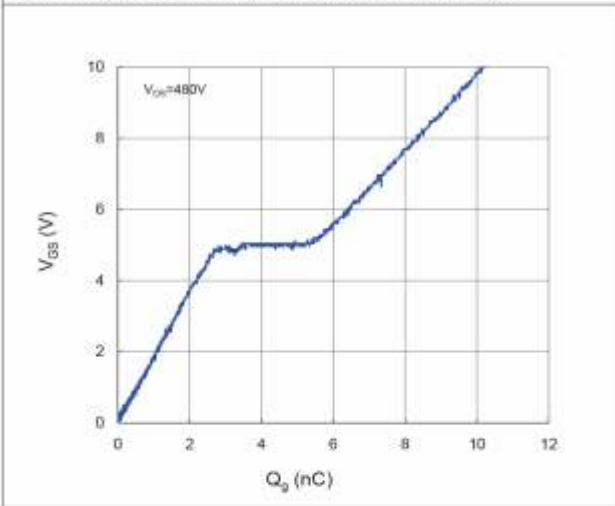


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

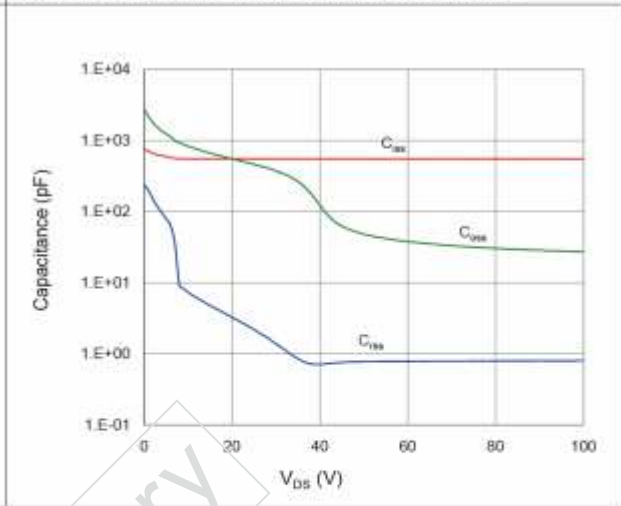


Figure 9. Maximum Safe Operating Area

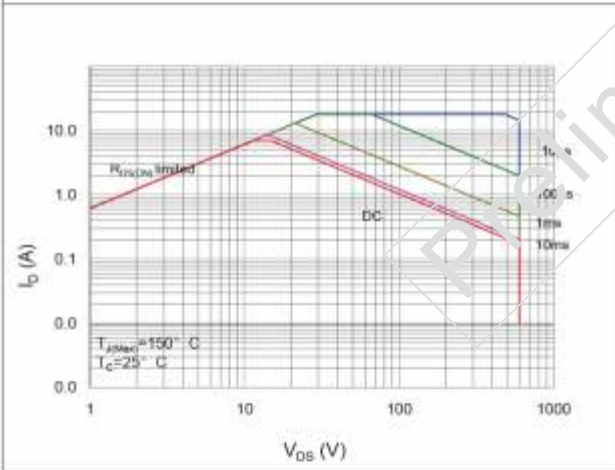


Figure 10. Maximum Drain Current vs. Case Temperature

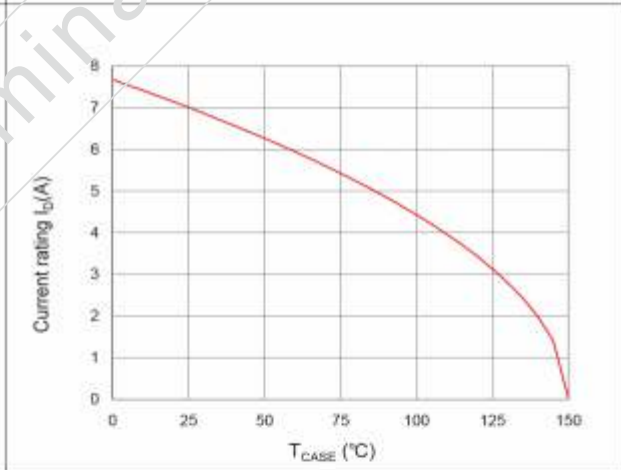
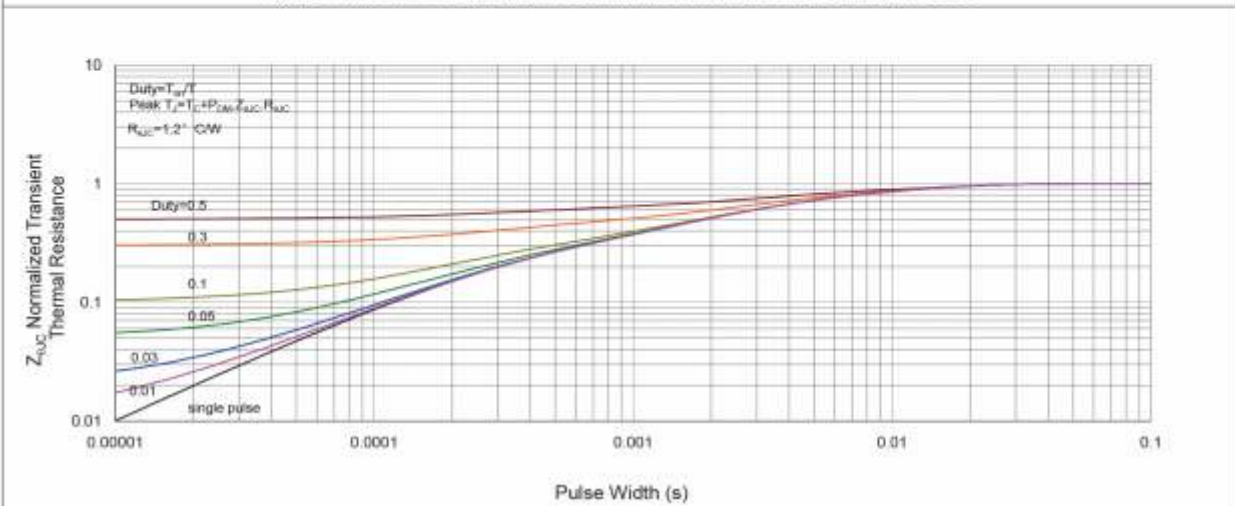
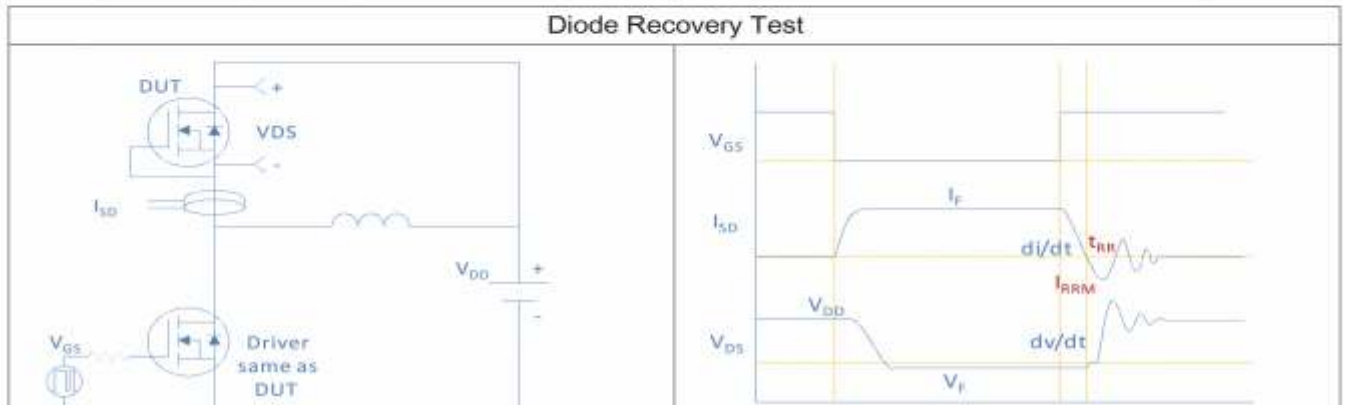
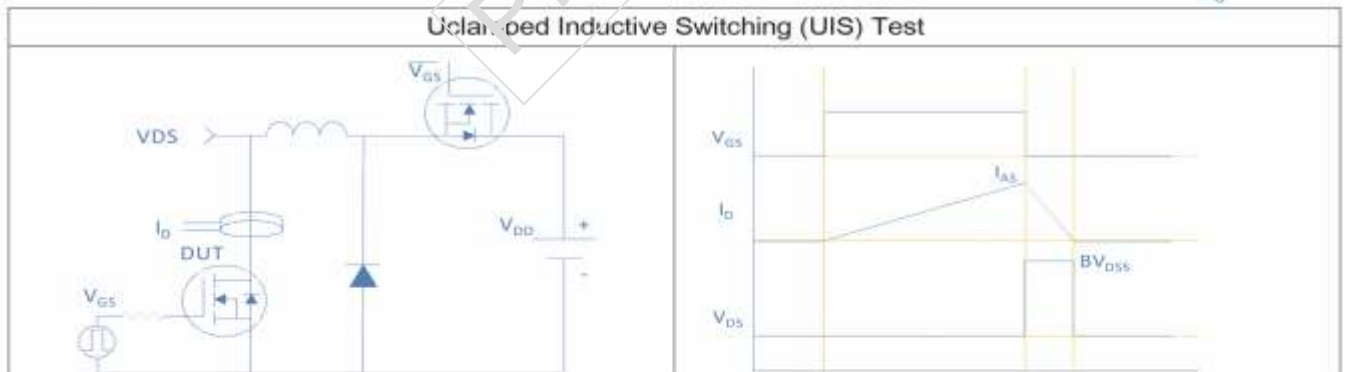
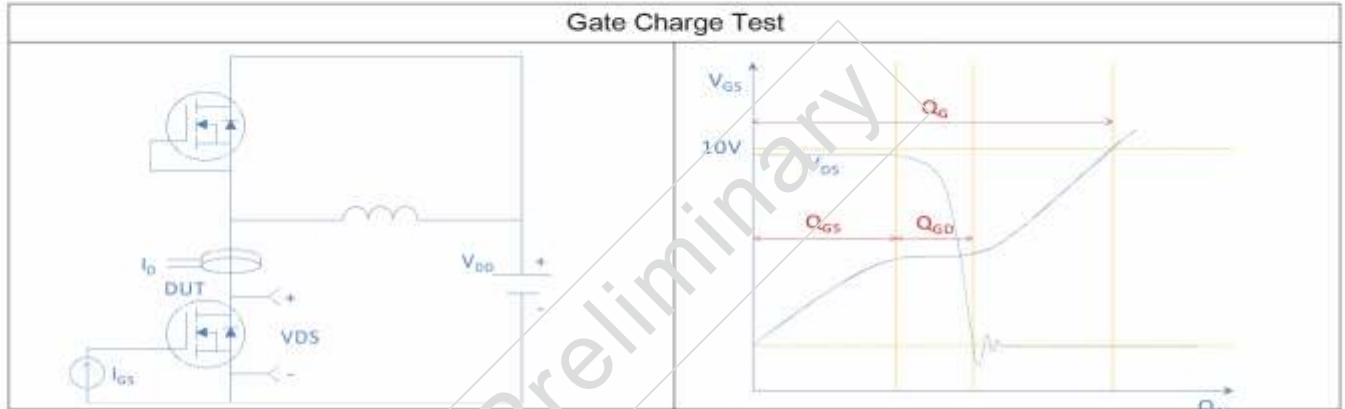
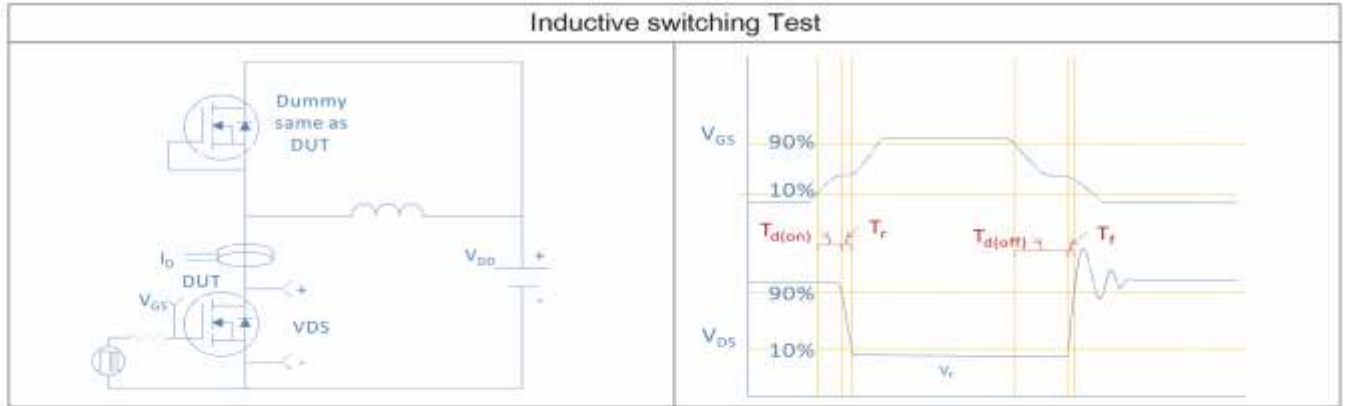


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case



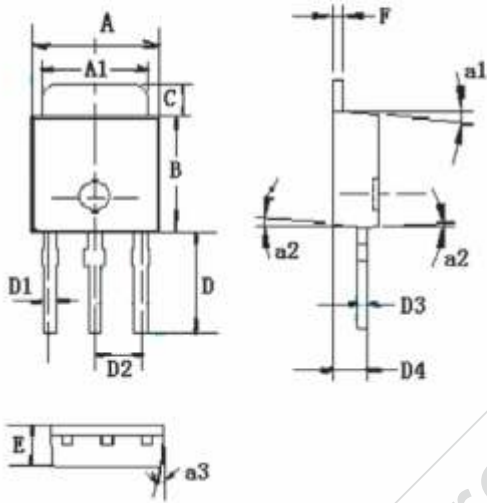
■ Rating and characteristics curves



■ Package Outline

TO-251, 3 leads (short leads)

Dimensions in mm unless otherwise specified



Symbol	Min	Nom	Max
A	6.40	6.50	6.60
A1	5.30	7	5.50
B	5.40	5.55	5.70
C	1.35	1.50	1.65
D1	3.30	3.50	3.70
D2	0.60	0.68	0.75
D3	0.55	0.60	0.65
D4	1.72	1.77	1.82
E	2.20	2.30	2.40
F	0.55	0.60	0.65
$\alpha 1$ (degree)		6°	
$\alpha 2$ (degree)		5°	
$\alpha 3$ (degree)		2°	

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Preliminary