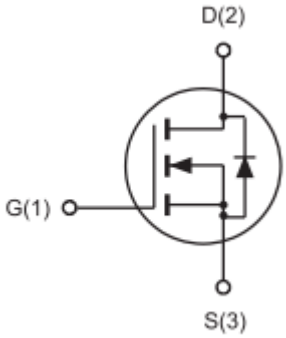
Features

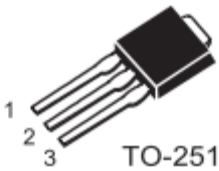
- 600V, 4A, $R_{DS(ON)}$(Max.) = 2.4Ω @ V_{GS} = 10V
- Low Crss
- Fast Switching
- 100 % Avalanche Tested



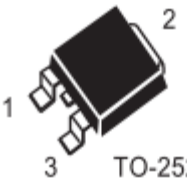
Applications

- Charger
- Standby Power.

TO-220F



TO-251



TO-252

ABSOLUTE MAXIMUM RATINGS (Tc = 25˚C unless otherwise noted)

Symbol	Parameter	Limit		Unit
		TO-220F	TO-251 TO-252	
V_{DS}	Drain – Source Voltage [a]	600		V
V_{GS}	Gate-Source Voltage	±30		V
I_D	Drain Current-Continuous, T_C =25 ℃	4		A
	Drain Current-Continuous, T_C =100 ℃	2.5		A
I_{DM}	Drain Current-Pulsed [b]	16		A
P_D	Maximum Power Dissipation @ T_J =25 ℃	33	77	W
E_{AS}	Single Pulsed Avalanche Energy [e]	217		mJ
T_J, T_{STG}	Operating and Store Temperature Range	-55 to 150		℃

Thermal Characteristics

Symbol	Parameter	Value		Unit
$R_{\theta JC}$	Thermal Resistance, Junction-Case Max.	3.58	1.61	℃ /W
$R_{\theta JA}$	Thermal Resistance, Junction-Ambient Max.	120	110	℃ /W

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

■ Off Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μ A	600	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 600V, V_{GS} = 0V	-	-	1	μ A
I_{GSSF}	Forward Gate Body Leakage Current	V_{DS} = 0V, V_{GS} = 30V	-	-	100	nA
I_{GSSR}	Reverse Gate Body Leakage Current	V_{DS} = 0V, V_{GS} = -30V	-	-	-100	nA

■ On Characteristics

V_{GS}(th)	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	2	2.62	4	V
R_{DS}(on)	Static Drain-Source On-Resistance [d]	V_{GS} = 10V, I_D = 2A	-	1.91	2.4	Ω
g_{FS}	Forward Transconductance [d]	V_{DS} = 15V, I_D = 2A	-	2.3	10	S

■ Dynamic Characteristics

Ciss	Input Capacitance	V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz	-	464	-	pF
Coss	Output Capacitance		-	87	-	pF
Crss	Reverse Transfer Capacitance		-	16	-	pF

■ Switching Characteristics

td(on)	Turn-On Delay Time	V_{DD} = 300V, I_D = 4A, R_G = 10Ω, V_{GS} = 10V	-	21.1	-	ns
tr	Turn-On Rise Time		-	7.5	-	ns
td(off)	Turn-Off Delay Time		-	29.1	-	ns
tf	Turn-Off Fall Time		-	6.3	-	ns
Qg	Total Gate Charge	V_{DS} = 300V, I_D = 4A, V_{GS} = 10V	-	8.4	-	nC
Qgs	Gate-Source Charge		-	3.2	-	nC
Qgd	Gate-Drain Charge		-	2.8	-	nC

■ Drain-Source Diode Characteristics

I_S	Drain-Source Diode Forward Continuous Current	V_{GS} = 0V	-	-	4	A
I_{SM}	Maximum Pulsed Current	V_{GS} = 0V	-	-	16	A
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS} = 0V, I_S = 4A	-	0.81	1.4	V

Notes :

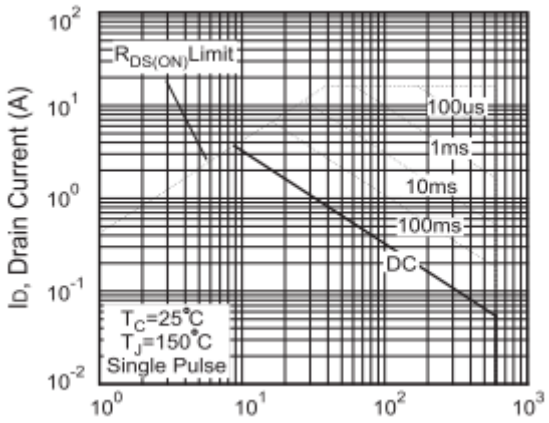
a. T_J = +25 C to +150 C.

b. Repetitive rating; pulse width limited by maximum junction temperature.

c. I_{SD}= 4.0A di/dt≦ 100 A/μs, V_{DD}≦ BV_{DSS}, T_J ≦ +150 C.

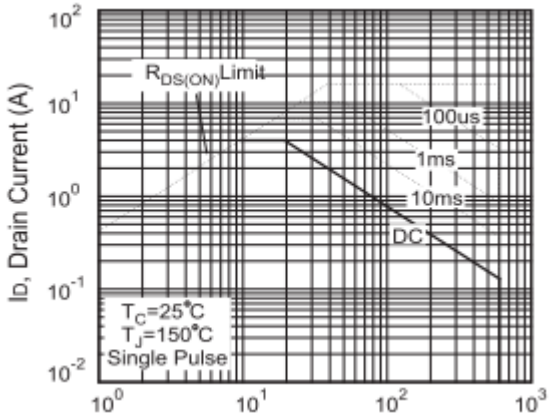
d. Pulse width≦ 300 μs; duty cycle≦ 2%.

e. L=30mH, V_{DD} =145V, I_{AS} =2.52A, R_G =25Ω Starting T_J =25 ℃.



VDS, Drain-Source Voltage (V) for EC734N60AR

Figure 1-1 Maximum Safe Operating Area



VDS, Drain-Source Voltage (V) for EC732N60A3R/EC734N60A4R

Figure 1-2 Maximum Safe Operating Area

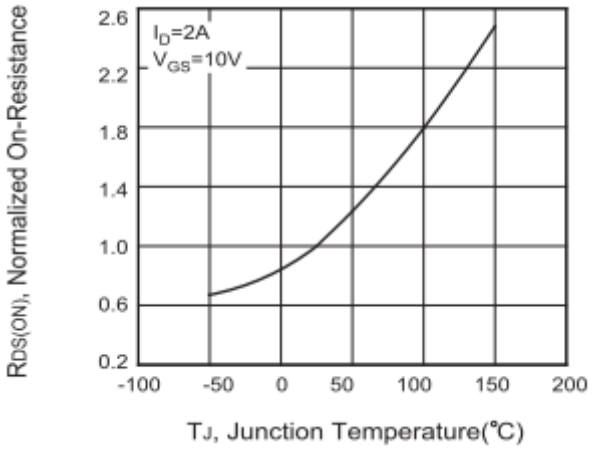


Figure 2. Normalized On-Resistance Variation with Temperature

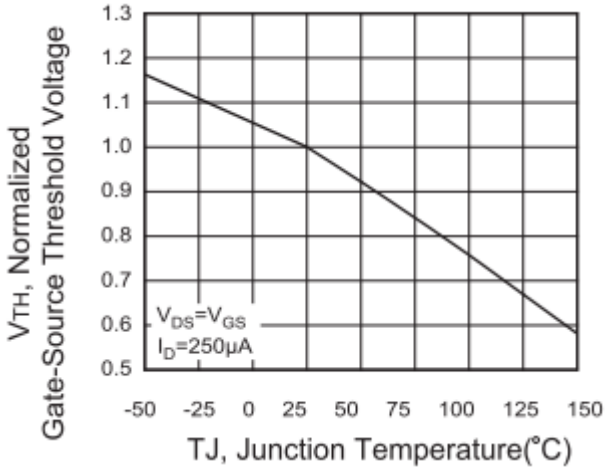


Figure 3. Gate Threshold Variation with Temperature

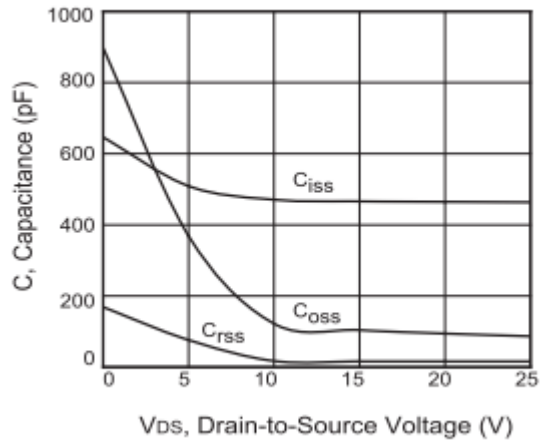


Figure 4. Capacitance Characteristics

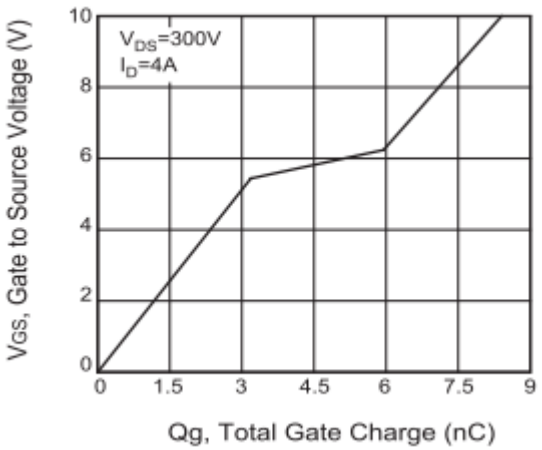


Figure 5. Gate Charge Characteristics

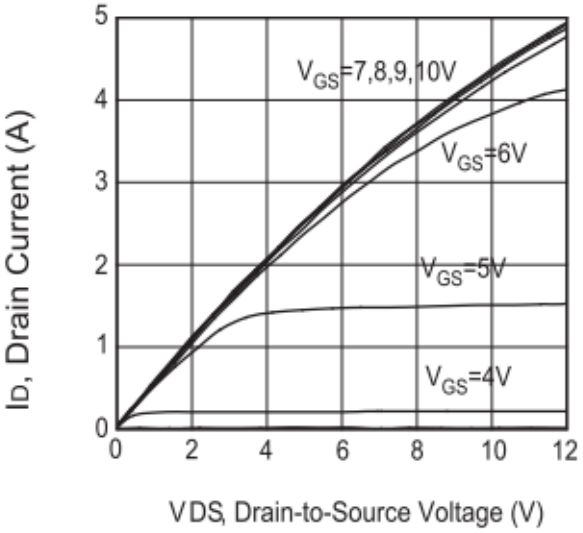


Figure 6. On-State Characteristics

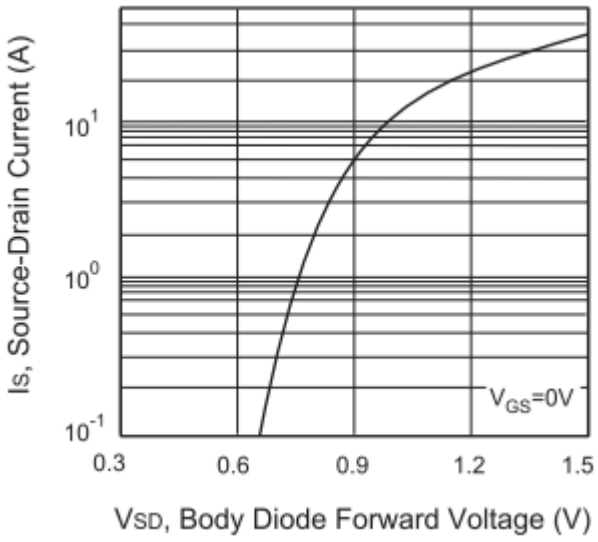


Figure 7. Body Diode Forward Voltage Variation with Source Current

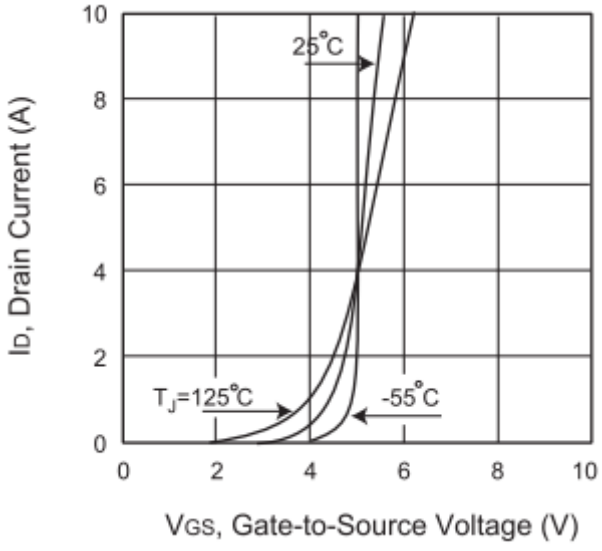


Figure 8. Transfer Characteristics

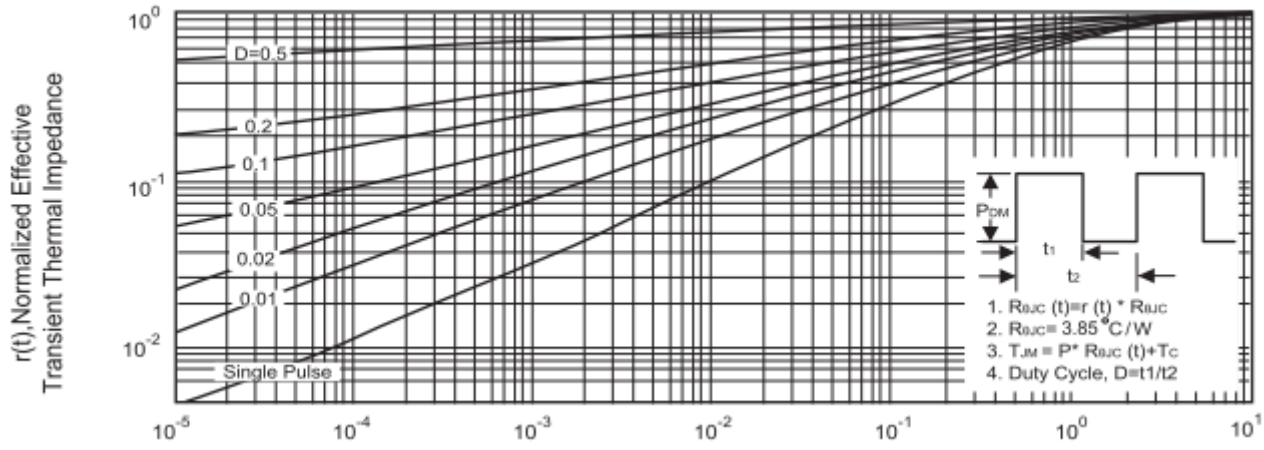


Figure 9-2. Normalized Effective Transient Thermal Impedance With Pulse Duration

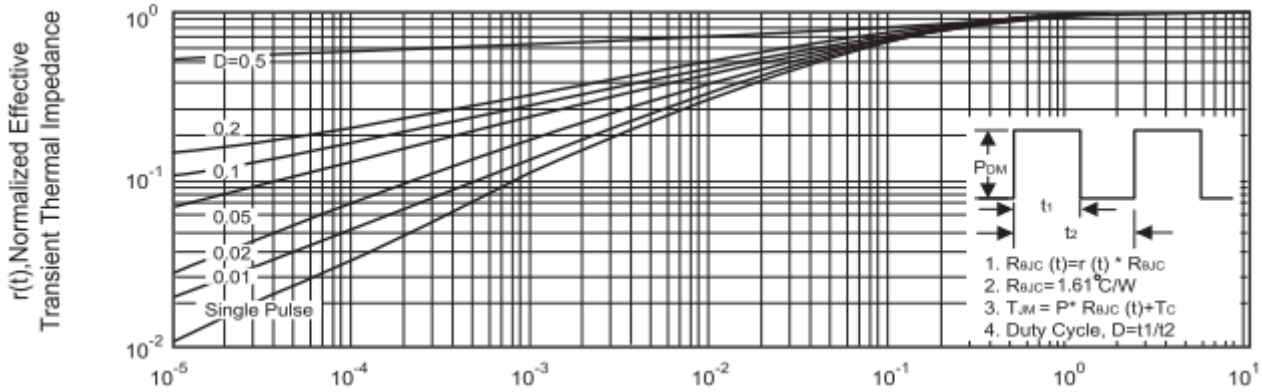


Figure 9-3. Normalized Effective Transient Thermal Impedance With Pulse Duration

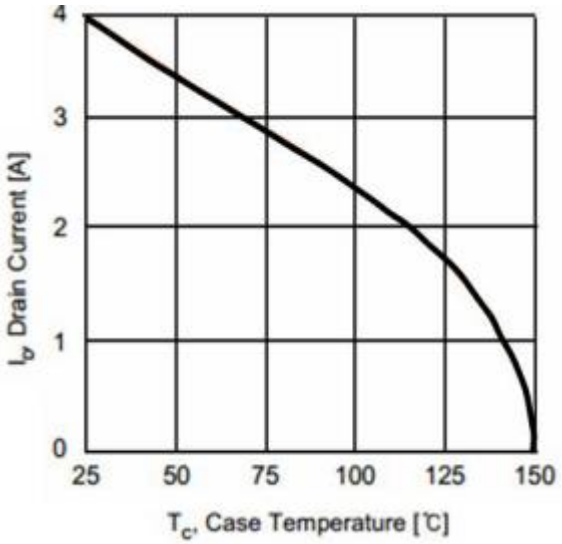


Figure 10 . Maximum Drain Current Vs. Case Temperature

ORDERING INFORMATION

Part Number	Package	Marking	Marking Information
EC734N60AR	TO-220F-3L	734N60 LLLLL YYWW	1. LLLLL：Lot No. 2. YY：Year code 3. WW：Week code
EC734N60A3R	TO-251-3L		
EC734N60A4R	TO-252-3L		