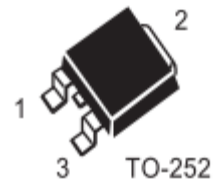
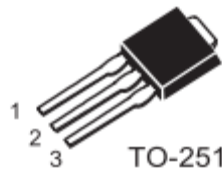
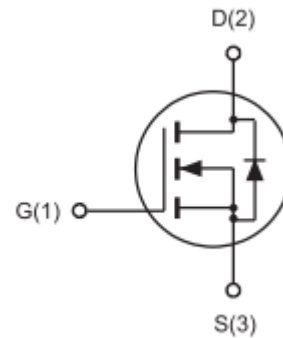


Features

- ◆ 600V, 2A, RDS(ON)(Max.) = 4.2 @VGS = 10V
- ◆ Low Crss
- ◆ Fast Switching
- ◆ 100 % Avalanche Tested

Applications

- ◆ Charger
- ◆ Standby Power.



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

Symbol	Parameter	Limit		Unit
		TO-220F	TO-251 TO-252	
VDS	Drain – Source Voltage ^a	600		V
VGS	Gate-Source Voltage	±30		V
ID	Drain Current-Continuous, T _C =25 °C	2		A
	Drain Current-Continuous, T _C =100 °C	1.2		A
IDM	Drain Current-Pulsed ^b	8		A
PD	Maximum Power Dissipation @ T _J =25 °C	23	34	W
E _{AS}	Single Pulsed Avalanche Energy ^c	115		mJ
T _J , T _{STG}	Operating and Store Temperature Range	-55 to 150		°C

Thermal Characteristics

Symbol	Parameter	Value		Unit
R _{θ JC}	Thermal Resistance, Junction-Case Max.	5.56	3.7	°C /W
R _{θ JA}	Thermal Resistance, Junction-Ambient Max.	120	110	°C /W

**Electrical Characteristics** ($T_J = 25^\circ\text{C}$ unless otherwise noted)■ **Off Characteristics**

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250 μ 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 = 250 μ A	2	3.27	4	V
R _{DS(on)}	Static Drain-Source On-Resistance ^d	V _{GS} = 10V, I _D = 1A	-	3.67	4.2	Ω
g _{FS}	Forward Transconductance ^d	V _{DS} = 15V, I _D = 1A	-	1.2	10	S

■ **Dynamic Characteristics**

C _{iss}	Input Capacitance	V _{DS} = 25V, V _{GS} = 0V, f = 1.0MHz	-	276	-	pF
C _{oss}	Output Capacitance		-	65	-	pF
C _{rss}	Reverse Transfer Capacitance		-	15	-	pF

■ **Switching Characteristics**

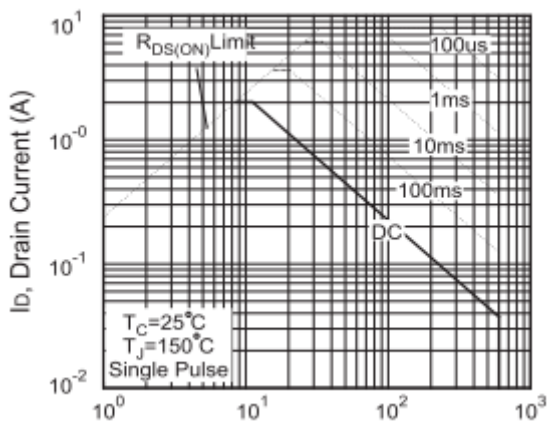
t _{d(on)}	Turn-On Delay Time	V _{DD} = 300V, I _D = 2A, R _G = 10 Ω , V _{GS} = 10V	-	20.1	-	ns
t _r	Turn-On Rise Time		-	9.2	-	ns
t _{d(off)}	Turn-Off Delay Time		-	24.7	-	ns
t _f	Turn-Off Fall Time		-	7.5	-	ns
Q _g	Total Gate Charge	V _{DS} = 300V, I _D = 2A, V _{GS} = 10V	-	4.8	-	nC
Q _{gs}	Gate-Source Charge		-	1.6	-	nC
Q _{gd}	Gate-Drain Charge		-	2.0	-	nC

■ Drain-Source Diode Characteristics

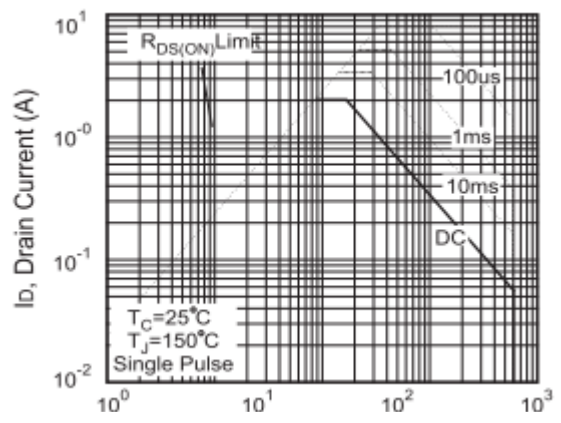
IS	Drain-Source Diode Forward Continuous Current	VGS = 0V	-	-	2	A
ISM	Maximum Pulsed Current	VGS = 0V	-	-	8	A
VSD	Drain-Source Diode Forward Voltage	VGS = 0V, IS = 2A	-	0.81	1.4	V

Notes :

- a. $T_J = +25\text{ C to }+150\text{ C}$.
- b. Repetitive rating; pulse width limited by maximum junction temperature.
- c. $I_{SD} = 2.0A$ di/dt $\leq 100\text{ A}/\mu\text{s}$, $V_{DD} \leq BV_{DSS}$, $T_J \leq +150\text{ C}$.
- d. Pulse width $\leq 300\ \mu\text{s}$; duty cycle $\leq 2\%$.
- e. $L=30\text{mH}$, $V_{DD} = 145\text{V}$, $I_{AS} = 2.52\text{A}$, $R_G = 25\Omega$ Starting $T_J = 25\text{ C}$.



V_{DS}, Drain-Source Voltage (V) for EC732N60AR
Figure 1-1 Maximum Safe Operating Area



V_{DS}, Drain-Source Voltage (V) for EC732N60A3R/EC732N60A4R
Figure 1-2 Maximum Safe Operating Area

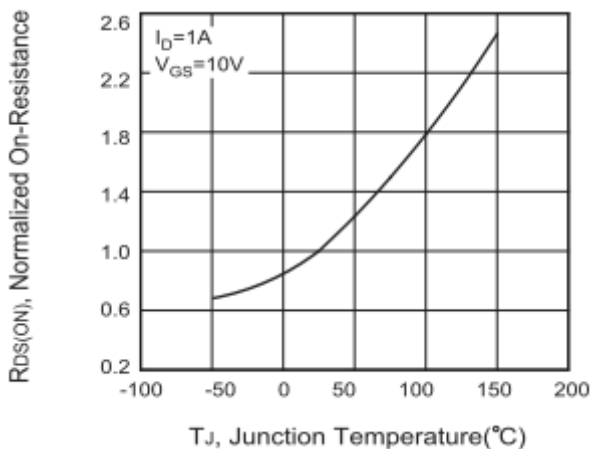


Figure 2. Normalized On-Resistance Variation with Temperature

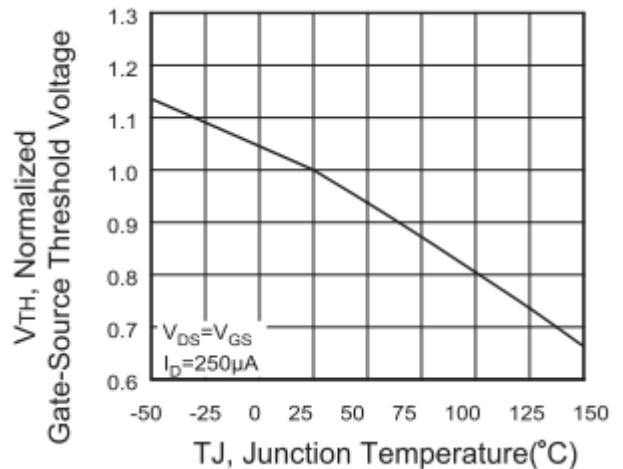


Figure 3. Gate Threshold Variation with Temperature

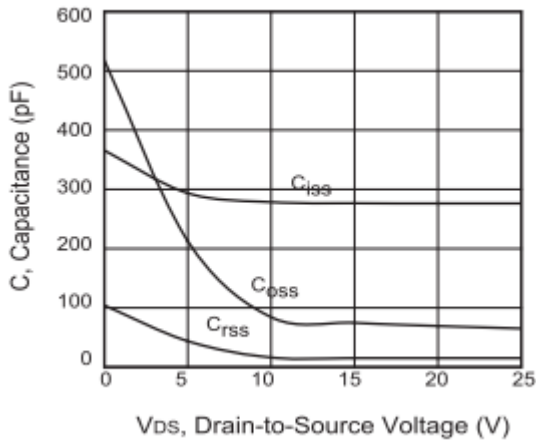


Figure 4. Capacitance Characteristics

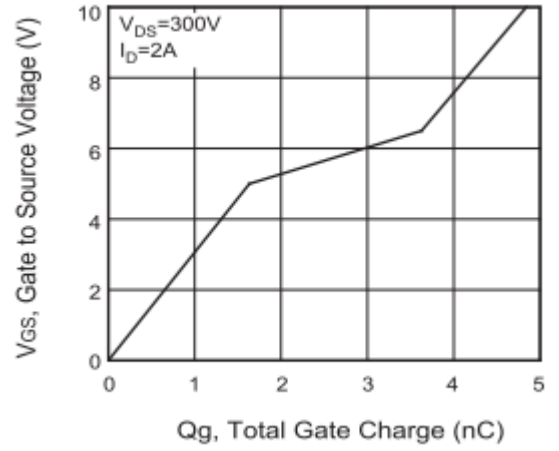


Figure 5. Gate Charge Characteristics

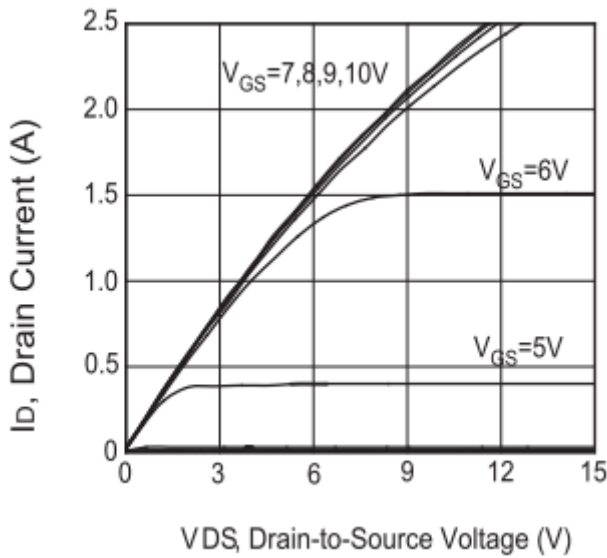


Figure 6. On-State Characteristics

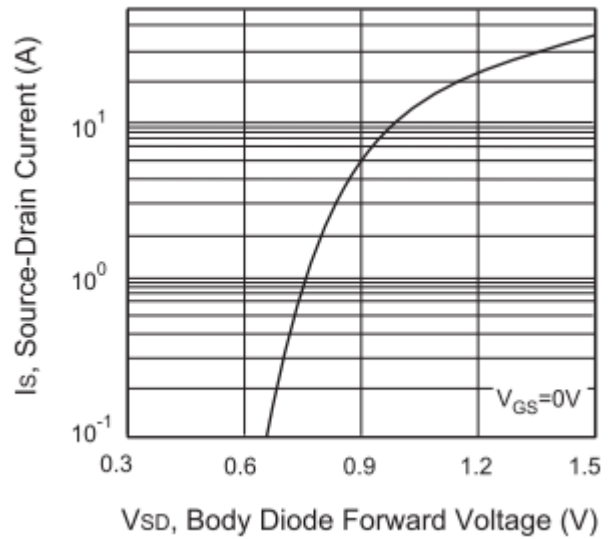


Figure 7. Body Diode Forward Voltage Variation with Source Current

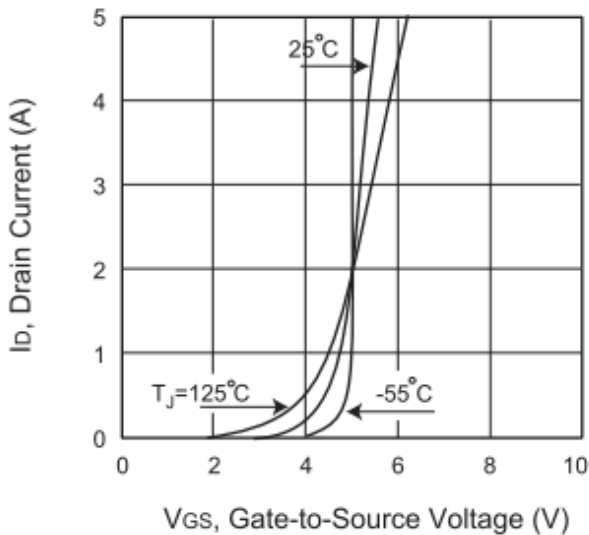


Figure 8. Transfer Characteristics

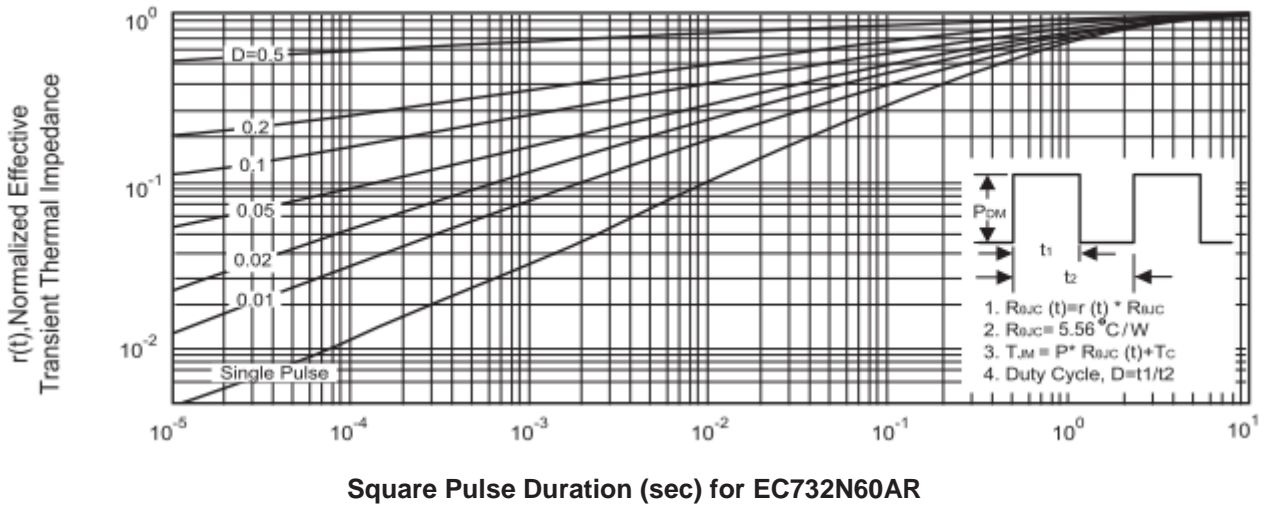


Figure 9-2. Normalized Effective Transient Thermal Impedance With Pulse Duration

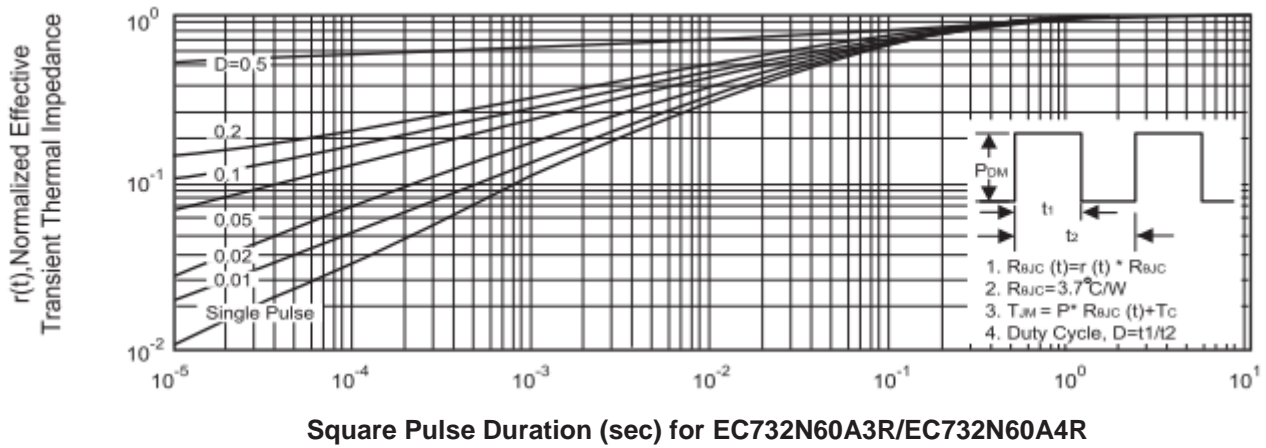


Figure 9-3. Normalized Effective Transient Thermal Impedance With Pulse Duration

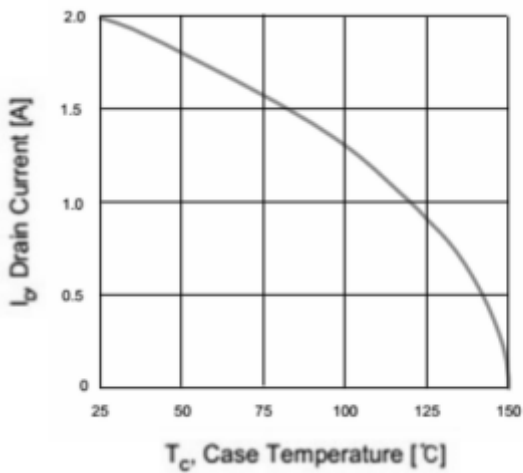


Figure 10 . Maximum Drain Current Vs. Case Temperature



ORDERING INFORMATION

Part Number	Package	Marking	Marking Information
EC732N60AR	TO-220F-3L	732N60 LLLLL YYWW	1. LLLLL : Lot No. 2. YY : Year code 3. WW : Week code
EC732N60A3R	TO-251-3L		
EC732N60A4R	TO-252-3L		