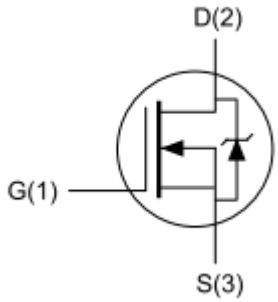
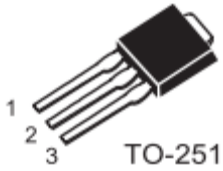
Features

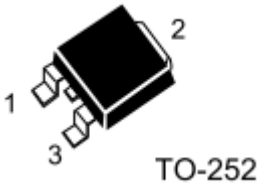
◆ 650V, 5.5A, $R_{DS(ON)}$(Max.) = 2.5Ω @ V_{GS} = 10V
◆ Low ON Resistance
◆ Low Gate Charge
◆ Peak Current vs. Pulse Width Curve
◆ RoHS Compliant/Lead Free Package



Applications

◆SMPS Power Supply
◆Adaptor /Charger
◆TV Main Power
◆LCD Panel Power





Absolute Maximum Ratings (Tc = 25˚C unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage [a]	650	V
V_{GS}	Gate-Source Voltage	30	V
I_D	Drain Current-Continuous, T_C =25 ℃	5.5	A
	Drain Current-Continuous, T_C =100 ℃	3.3	A
I_{DM}	Drain Current-Pulsed [b]	22	A
P_D	Maximum Power Dissipation @ T_J =25 ℃	60	W
	Derating Factor	0.43	W/ ℃
E_{AS}	Single Pulsed Avalanche Energy [e]	81	mJ
T_L	Maximum Temperature for Soldering Leads at 0.063in (1.6mm) from Case for 10 seconds	300	℃
T_{PKG}	Package Body for 10 seconds	260	
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.	2.1	℃/W
$R_{\theta JA}$	Thermal Resistance, Junction-Ambient Max.	62	℃/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 = 250 μA	650	-	-	V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Breakdown Voltage Temperature Coefficient	Reference to 25℃, ID=250 μA	-	0.63	-	V/ ℃
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =650V, V_{GS} = 0V	-	-	25	μA
		V_{DS}=520V, V_{GS}=0V T_J=125 ℃	-	-	250	μA
I_{GSSF}	Forward Gate Body Leakage Current	V_{GS} = 30V, V_{DS} = 0V	-	-	100	nA
I_{GSSR}	Reverse Gate Body Leakage Current	V_{GS} = -30V, V_{DS} = 0V	-	-	-100	nA

■ On Characteristics

V_{GS}(th)	Gate Threshold Voltage	V_{GS} = V_{DS}, I_D = 250μA	2.5	2.93	4.5	V
R_{DS}(on)	Static Drain-Source On-Resistance	V_{GS} = 10V, I_D = 1.85A [d]	-	1.9	2.5	Ω
g_{FS}	Forward Transconductance	V_{DS} = 15V, I_D = 1.85A [d]	-	3.02	-	S

■ Dynamic Characteristics

C_{iss}	Input Capacitance	V_{DS} = 25V, V_{GS} = 0V, f = 1.0 MHz	-	733	-	pF
C_{oss}	Output Capacitance		-	95	-	pF
C_{rss}	Reverse Transfer Capacitance		-	22	-	pF

■ Switching Characteristics

$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 325V, I_D = 3.7A, V_{GS} = 10V R_G=9.1Ω	-	20	-	ns
t_r	Turn-On Rise Time		-	6	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	35	-	ns
t_f	Turn-Off Fall Time		-	8	-	ns
Q_g	Total Gate Charge	V_{DD}=325V I_D=3.7A	-	18	-	nC
Q_{gs}	Gate-Source Charge		-	3.1	-	nC
Q_{gd}	Gate-Drain Charge		-	8	-	nC

■ Drain-Source Diode Characteristics

I_S	Drain-Source Diode Forward Continuous Current	V_{GS} = 0V	-	-	3.7	A
I_{SM}	Maximum Pulsed Current	V_{GS} =0V	-	-	14.8	A
V_{SD}	Drain-Source Diode Forward	V_{GS} = 0V, I_S = 3.7A	-	0.86	1.5	V

Notes :

a. T_J = +25 ℃ to +150 ℃.

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

c. I_{SD}= 3.7A di/dt≦ 100 A/μs, V_{DD}≦ BV_{DSS}, T_J ≦ +150 ℃.

d. Pulse width≦ 380 μs; duty cycle≦ 2%.

e. L=10mH, V_{DD} =90V, I_{AS} =3.7A, R_G =25Ω Starting T_J =150 ℃.

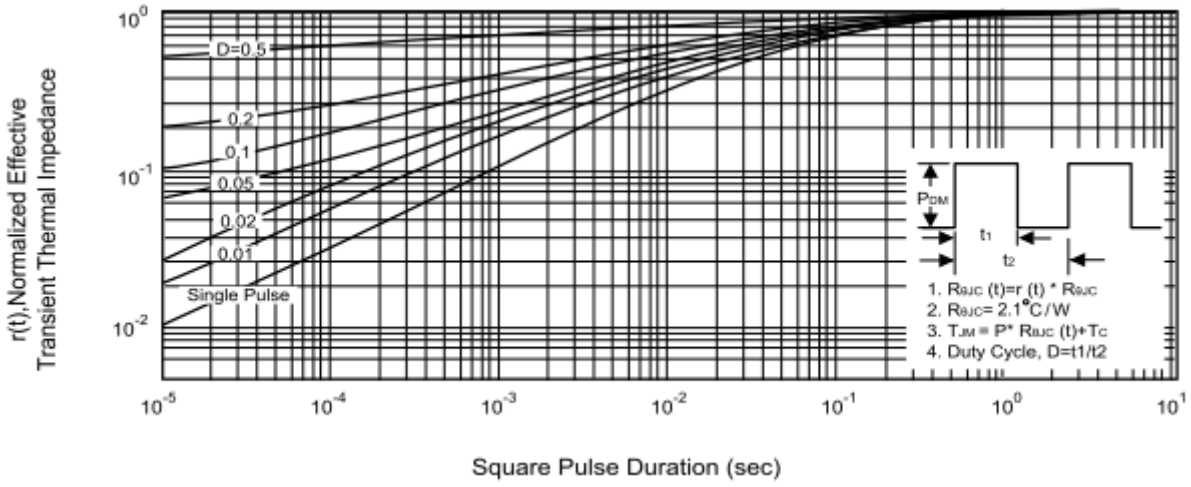


Figure 1 . Normalized Effective Transient Thermal Impedance With Pulse Duration

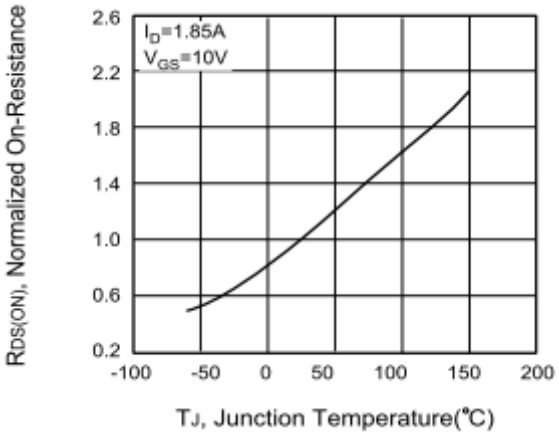


Figure 2. Normalized On-Resistance Variation with Temperature

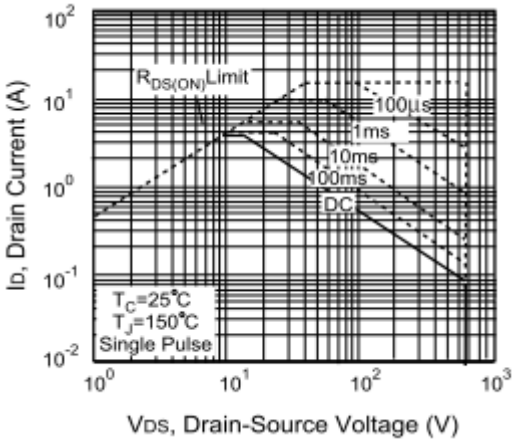


Figure3 Maximum Safe Operating Area

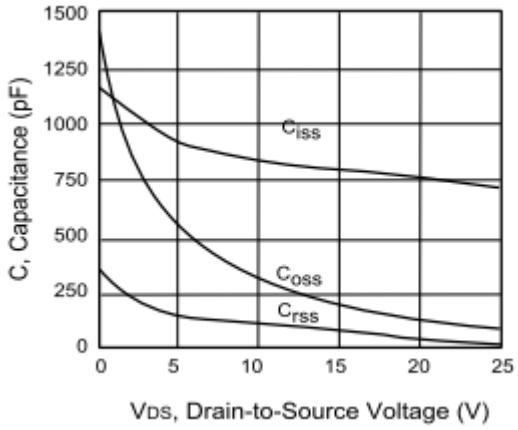


Figure 4. Capacitance Characteristics

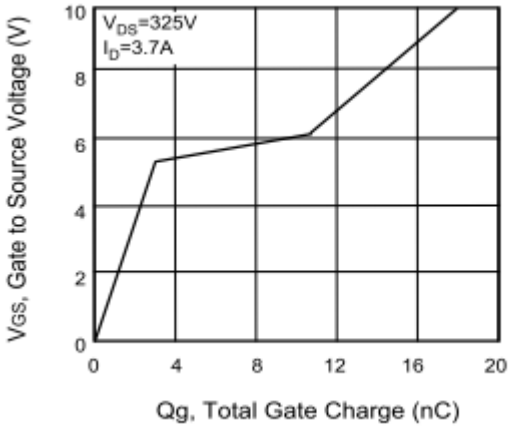


Figure 5. Gate Charge Characteristics

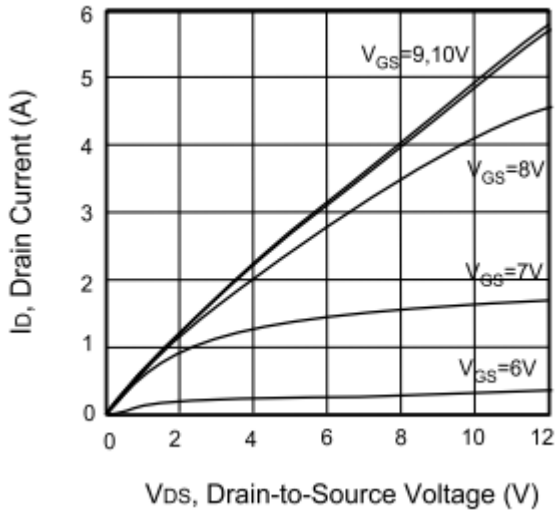
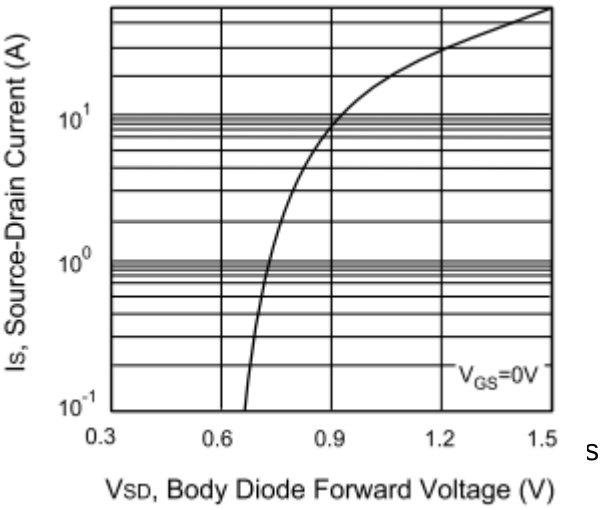


Figure 6. On-State Characteristics



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Figure 7. Body Diode Forward Voltage Variation with Source Current

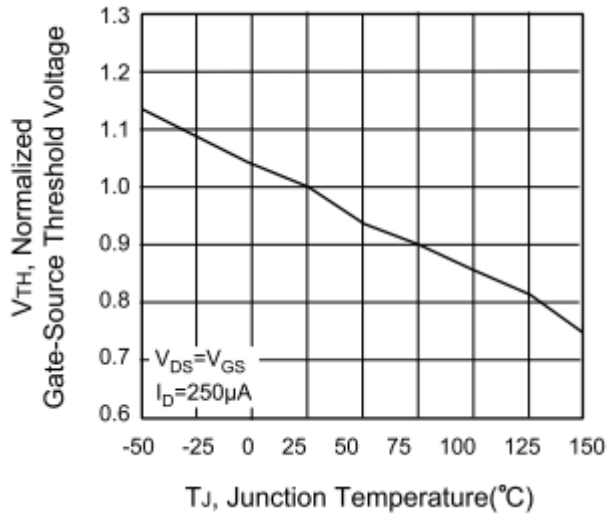


Figure 8. Gate Threshold Variation with Temperature

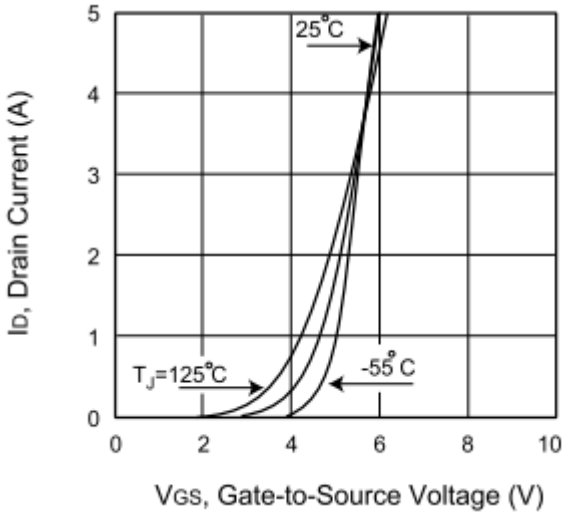


Figure 9. Transfer Characteristics

ORDERING INFORMATION

Part Number	Package	Marking	Marking Information
EC744N65A3R	TO-251-3L	744N65 LLLLL YYWW	1. LLLLL：Lot No. 2. YY：Year code 3. WW：Week code
EC744N65A4R	TO-252-3L		