Description

The 150N03NF is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The 150N03NF meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

V_{DSS} 30 V
I_D 150 A
$R_{DS(ON)}$ 1.5 mΩ

GK xxx
150N03NF

LOGO GK xxx CODE

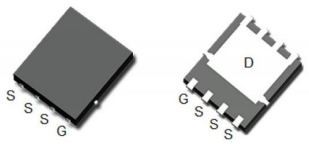
150N03NF

ID VDSS

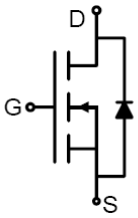
Features

100% EAS Guaranteed
Green Device Available
Super Low Gate Charge
Low $R_{DS(ON)}$
Advanced high cell density Trench technology

PDFN5X6-8L top&bottom view



Equivalent Circuit



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V[1]	150	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V[1]	80	A
I_{DM}	Pulsed Drain Current[2]	450	A
EAS	Single Pulse Avalanche Energy[3]	580	mJ
I_{AS}	Avalanche Current	60	A
P_D@T_C=25℃	Total Power Dissipation[4]	87	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	---	62	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	---	2.1	℃/W

Electrical Characteristics (T_J=25℃unless otherwise noted)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
Off characteristics						
BV_{DSS}	Drain to source breakdown voltage	V_{GS}=0V, I_D=250uA	30			V
ΔBV_{DSS} / ΔT_J	Breakdown voltage temperature coefficient	I_D=250uA, referenced to 25°C		0.02		V/°C
I_{DSS}	Drain to source leakage current	V_{DS}=30V, V_{GS}=0V			1	uA
		V_{DS}=24V, T_J=125°C			50	uA
I_{GSS}	Gate to source leakage current, forward	V_{GS}=20V, V_{DS}=0V			100	nA
	Gate to source leakage current, reverse	V_{GS}=-20V, V_{DS}=0V			-100	nA
On characteristics						
$V_{GS(TH)}$	Gate threshold voltage	V_{DS}=V_{GS}, I_D=250uA	1.2		2.4	V
$R_{DS(ON)}$	Drain to source on state resistance	V_{GS}=4.5V, I_D=30A,T_J=25°C		2.2	4.8	mΩ
		V_{GS}=10V, I_D=30A,T_J=25°C		1.5	2.9	mΩ
		V_{GS}=10V, I_D=30A,T_J=125°C		2.5		mΩ
G_{fs}	Forward transconductance	V_{DS}=5V, I_D=30A		73		S
Dynamic characteristics						
C_{iss}	Input capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		6272		pF
C_{oss}	Output capacitance			1022		
C_{rss}	Reverse transfer capacitance			718		
$t_{d(on)}$	Turn on delay time	V_{DS}=15V, I_D=30A, R_G=4.7Ω, V_{GS}=10V (note 4)		20		ns
t_r	Rising time			58		
$t_{d(off)}$	Turn off delay time			158		
t_f	Fall time			77		
Q_g	Total gate charge	V_{DS}=24V, V_{GS}=10V, I_D=30A , I_G=5mA (note 4)		143		nC
Q_{gs}	Gate-source charge			17		
Q_{gd}	Gate-drain charge			43		
R_g	Gate resistance	V_{DS}=0V, Scan F mode		4.2		Ω

Source to drain diode ratings characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_S	Continuous source current	Integral reverse p-n Junction diode in the MOSFET			110	A
I_{SM}	Pulsed source current				440	A
V_{SD}	Diode forward voltage drop.	I_S=45A, V_{GS}=0V			1.4	V
t_{rr}	Reverse recovery time	I_S=30A, V_{GS}=0V, dI_F/dt=100A/us		26		ns
Q_{rr}	Reverse recovery charge			10		nC

※. Notes
1. Repeatitive rating : pulse width limited by junction temperature.
2. L =0.5mH, I_{AS} =48A, V_{DD}=30V, R_G=25Ω, Starting T_J = 25°C
3. I_{SD} ≤30A, di/dt = 100A/us, V_{DD} ≤ BV_{DSS}, Staring T_J =25°C
4. Pulse Test : Pulse Width ≤ 300us, duty cycle ≤ 2%.

RATING AND CHARACTERISTIC CURVES

Fig. 1. On-state characteristics

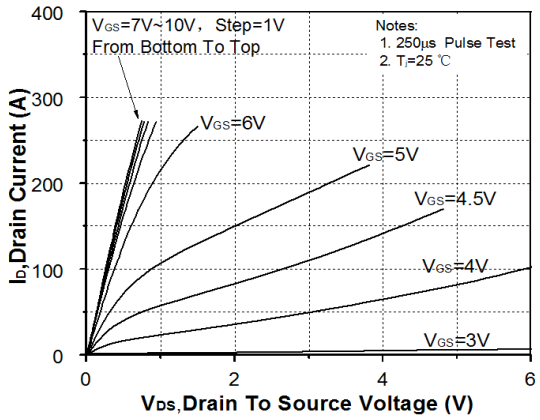


Fig. 2. Transfer Characteristics

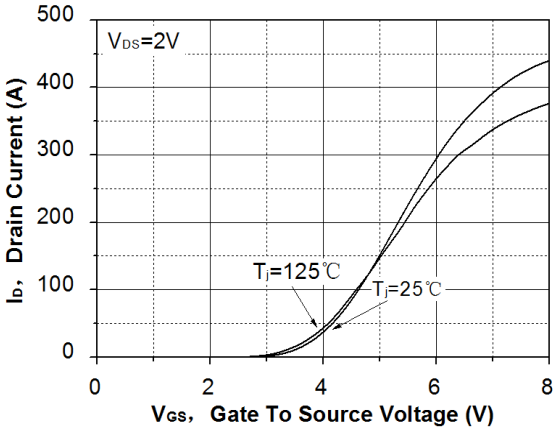


Fig. 3. On-resistance variation vs. drain current and gate voltage

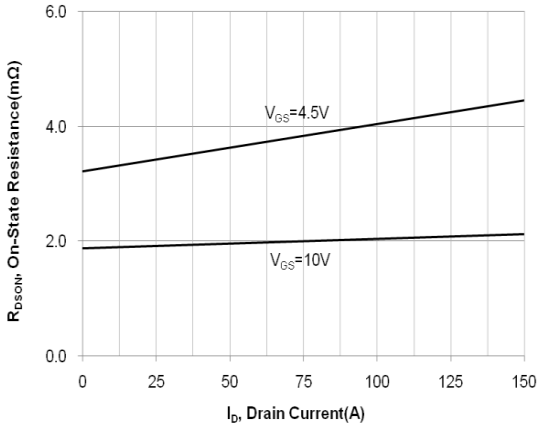


Fig. 4. On-state current vs. diode forward voltage

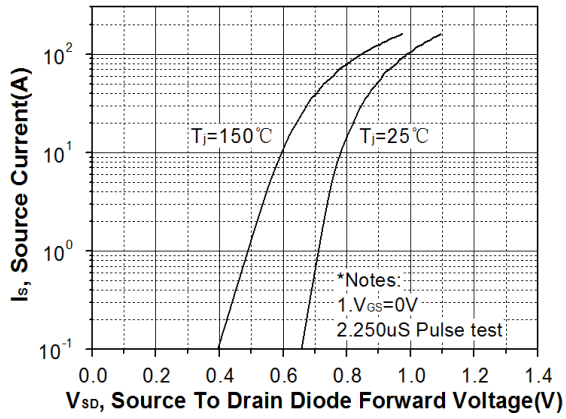


Fig 5. Breakdown voltage variation vs. junction temperature

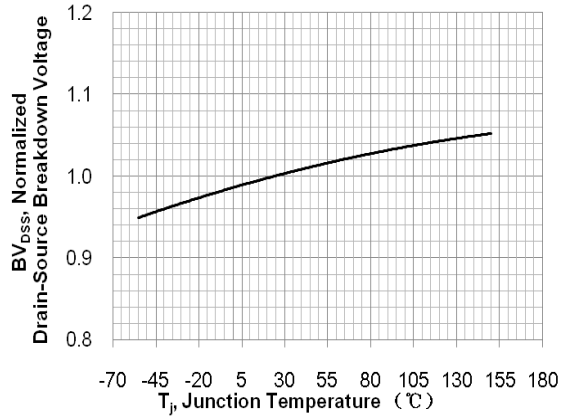
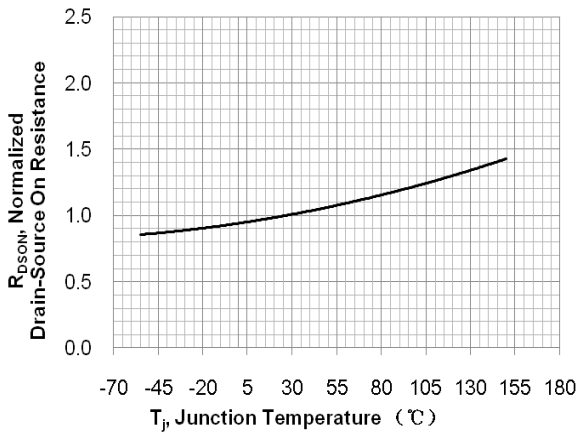


Fig. 6. On-resistance variation vs. junction temperature



RATING AND CHARACTERISTIC CURVES

Fig. 7. Gate charge characteristics

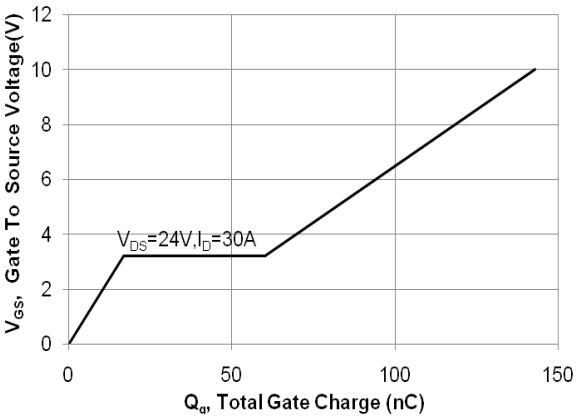


Fig. 8. Capacitance Characteristics

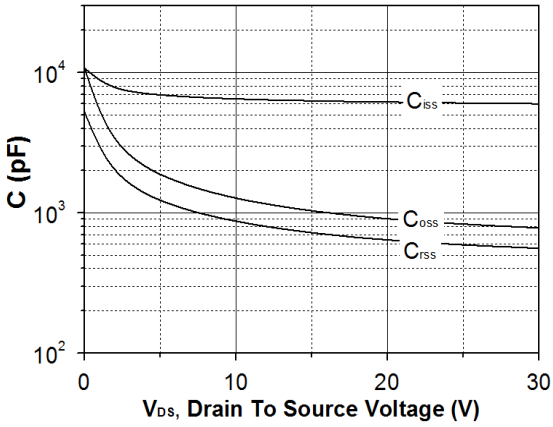


Fig. 9. Maximum safe operating area

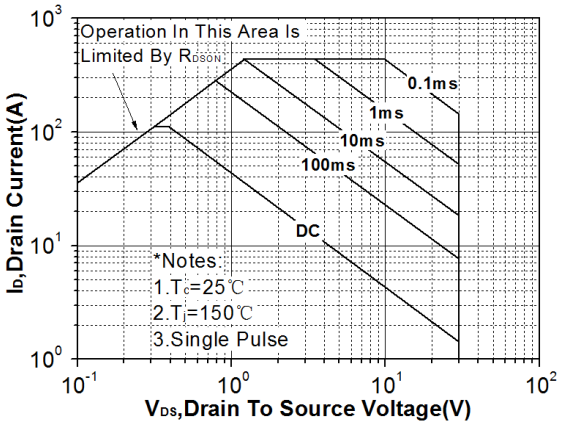


Fig. 10. Maximum drain current vs. case temperature

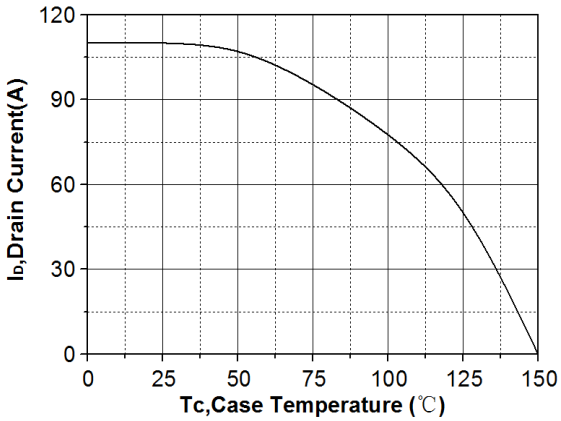
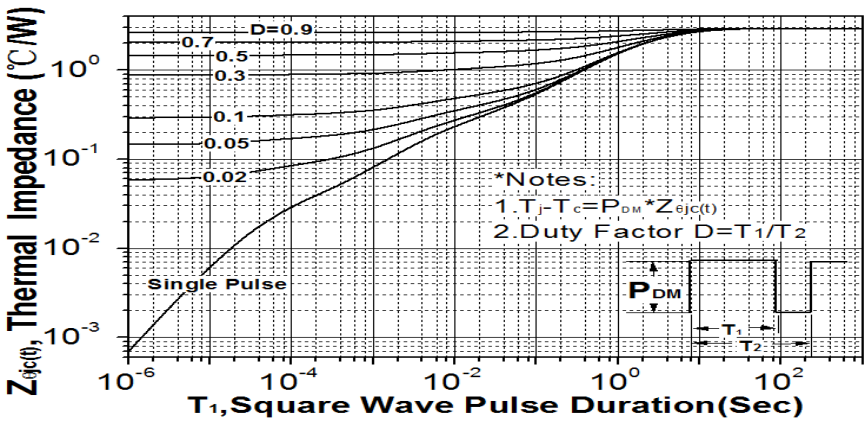


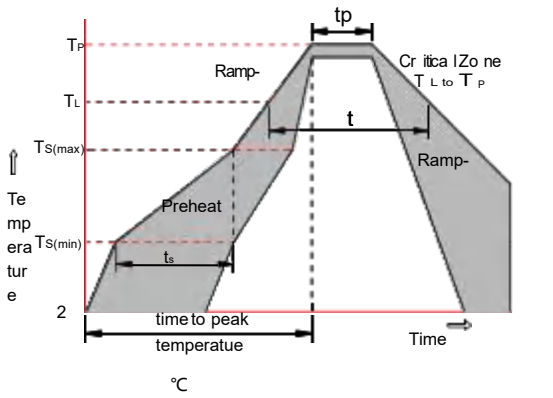
Fig. 11. Transient thermal response curve



Soldering parameters

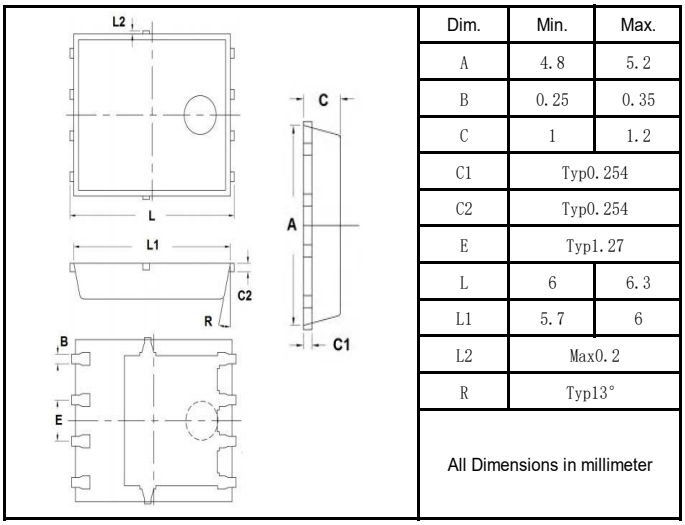
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG5: Reflow condition



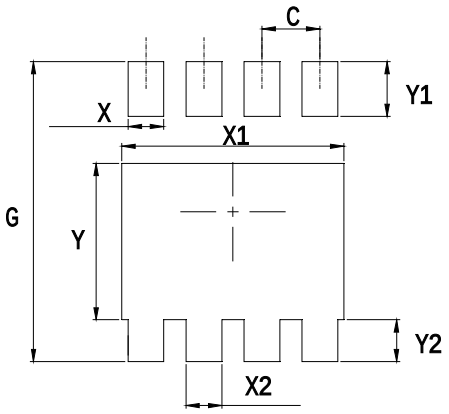
Package Dimensions & Suggested Pad Layout

PDFN5*6



Dim.	Min.	Max.
A	4.8	5.2
B	0.25	0.35
C	1	1.2
C1	Typ0.254	
C2	Typ0.254	
E	Typ1.27	
L	6	6.3
L1	5.7	6
L2	Max0.2	
R	Typ13°	

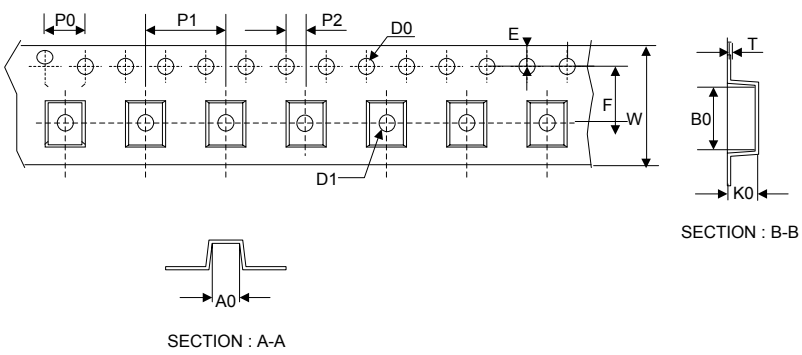
All Dimensions in millimeter



Dimensions	Value (in mm)
C	1.27
G	6.45
X	0.62
X1	4.50
X2	0.62
Y	3.70
Y1	1.05
Y2	0.80

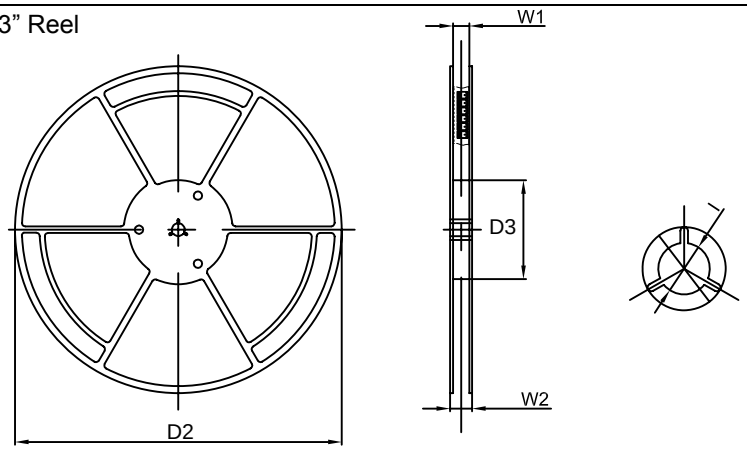
Tape & rell specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	8.00±0.20
P2	2.00±0.20
D0	1.55±0.20
D1	1.55±0.20
E	1.75±0.20
F	5.50±0.20
W	12.00±0.20
A0	6.60±0.20
B0	5.70±0.20
K0	1.30±0.20
T	0.20±0.20

13” Reel



D2	330.0±5.0
D3	100.0±4.0
W1	12.0±5.0
W2	14.0±5.0
I	13.0±2.0

Quantity: 5000PCS

ENTEGRECİ

Bu belge www.entegreci.com üzerinden sunulmaktadır.

Elektronik komponent tedarikinde Entegreci

Entegreci, Eskişehir merkezli, Türkiye geneline satış yapan bir elektronik komponent mağazasıdır. Entegreler (IC), mikrodenetleyiciler, transistörler, diyotlar, pasif elemanlar, konnektörler, modüller ve geliştirme kartları tek adetten seri üretim adetlerine kadar satılır. Ürün sayfalarında güncel stok durumunu, fiyatı ve datasheet bağlantısını bulabilirsiniz.

Parça koduyla arama

Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

www.entegreci.com

Ürün kategorileri

Entegreden kapasitöre tüm elektronik komponent kategorileri.

Kategorilere göz atın

Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

Üreticileri görün

Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

Teklif isteyin

www.entegreci.com | **destek@entegreci.com** | **0850 305 90 34**

Entegreci is an online electronic components store based in Türkiye. Search by manufacturer part number to see stock, prices and datasheets for integrated circuits, microcontrollers, transistors, passive components and connectors, or request a quote for parts that are not listed.

Bu sayfa Entegreci tarafından eklenmiştir. Belgenin önceki sayfaları asıl yayıncısına aittir ve içeriği değiştirilmemiştir; en güncel sürüm için belgenin yayıncısına başvurun.