80N03
N-Channel Enhancement Mode MOSFET

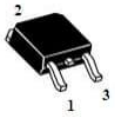
V_{DSS}	30 V
I_D	80 A
$R_{DS(ON)}$	4.0mΩ

FEATURES

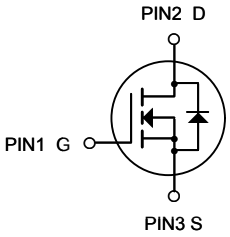
- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

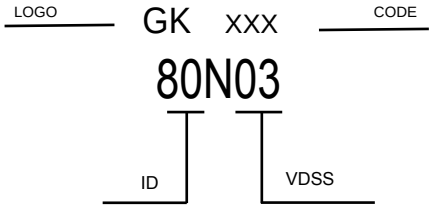
DESCRIPTION

- DC-DC Converters
- Power management functions
- Industrial and Motor Drive application









MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage (V_{GS}=0V)	30	V
V_{GS}	Gate-Source Voltage (V_{DS}=0V)	±20	V
I_D	Drain Current-Continuous(T_C=25℃) **(Note 1)**	80	A
	Drain Current-Continuous(T_C=100℃)	55	A
$I_{DM\ (pluse)}$	Drain Current-Continuous@ Current-Pulsed **(Note 2)**	230	A
P_D	Maximum Power Dissipation(T_C=25℃)	65	W
	Maximum Power Dissipation(T_C=100℃)	32.5	W
E_{AS}	Avalanche energy **(Note 3)**	90	mJ
T_J,T_{STG}	Operating Junction and Storage Temperature Range	-55 To 175	℃
$R_{\theta JC}$	Thermal Resistance,Junction-to-Case	2	℃/W

Electrical characteristics (T_J=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V,V_{GS}=0V			1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V,V_{DS}=0V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	1.0	1.5	2.5	V
g_{FS}	Forward Transconductance	V_{DS}=5V,I_D=20A	10	20		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=10V, I_D=20A		4.0	5.3	mΩ
		V_{GS}=5V, I_D=15A		6.5	8.5	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V,V_{GS}=0V, f=1.0MHz		2200		pF
C_{oss}	Output Capacitance			312		pF
C_{rss}	Reverse Transfer Capacitance			195		pF
Rg	Gate resistance	V_{GS}=0V, V_{DS}=0V,f=1.0MHz		2		Ω
Switching Times						
$t_{d(on)}$	Turn-on Delay Time	V_{GS}=10V, V_{DS}=15V, R_L=0.75Ω,R_{GEN}=3Ω		7		nS
t_r	Turn-on Rise Time			22		nS
$t_{d(off)}$	Turn-Off Delay Time			30		nS
t_f	Turn-Off Fall Time			5		nS
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=25V, I_D=12A		47		nC
Q_{gs}	Gate-Source Charge			8		nC
Q_{gd}	Gate-Drain Charge			9		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current(Body Diode)				80	A
V_{SD}	Forward on Voltage	V_{GS}=0V,I_S=20A			1.2	V

Notes 1.The maximum current rating is package limited.

Notes 2.Repetitive Rating: Pulse width limited by maximum junction temperature

Notes 3.EAS condition: T_J=25℃,VDD=30V,V_G=10V, RG=25Ω

RATING AND CHARACTERISTIC CURVES

Figure 1. Output Characteristics

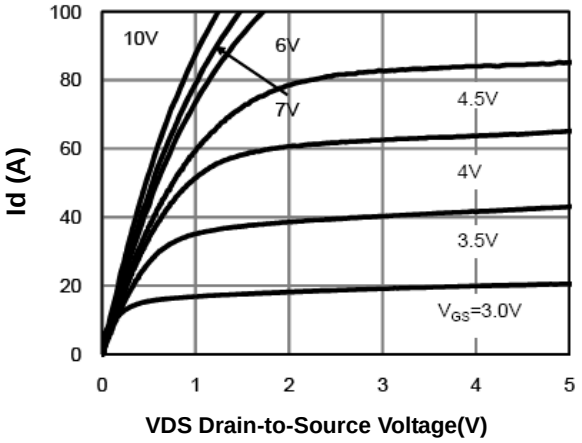


Figure 2. Transfer Characteristics

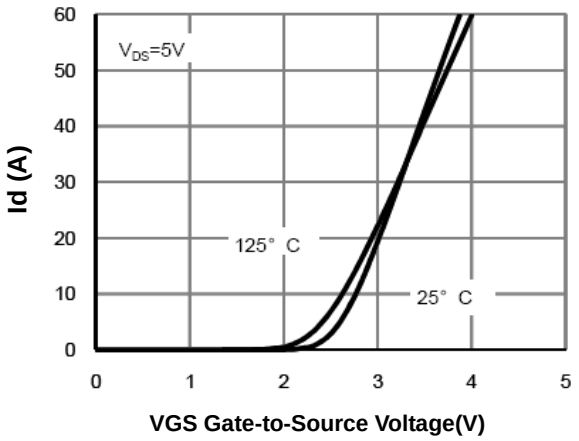


Figure 3. Max BV_{DSS} vs Junction Temperature

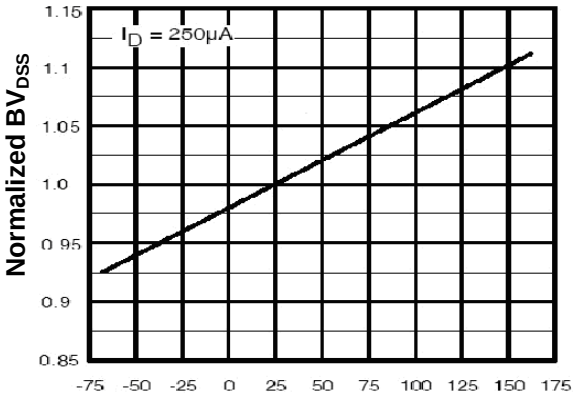


Figure 4. Drain Current

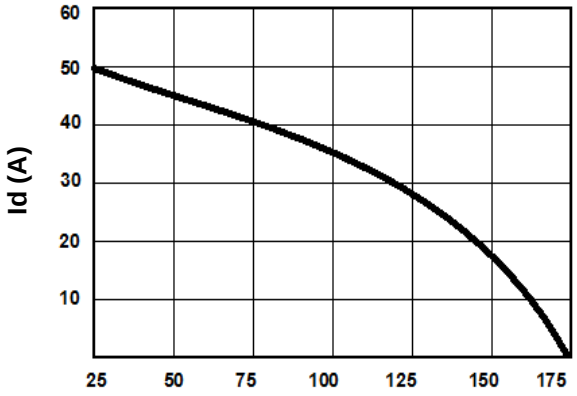


Figure 5. $V_{GS(th)}$ vs Junction Temperature

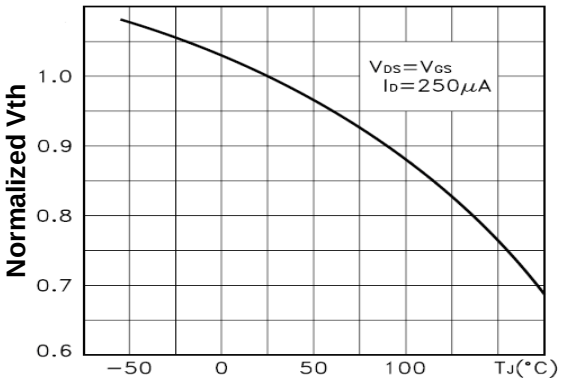
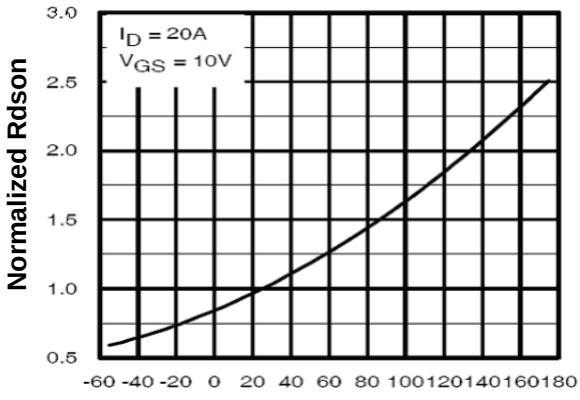


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



RATING AND CHARACTERISTIC CURVES

Figure 7. Gate Charge Waveforms

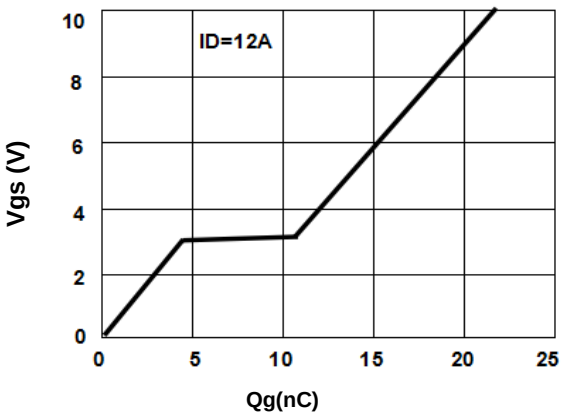


Figure 8. Capacitance

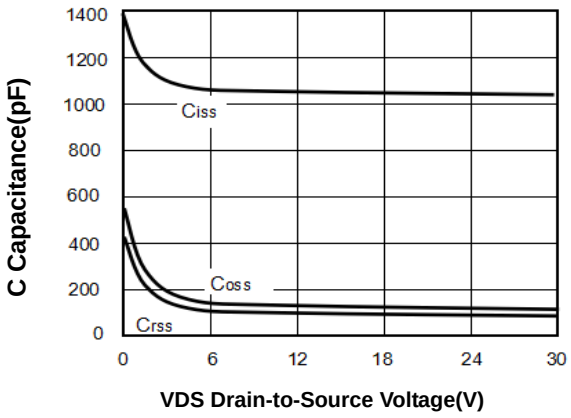


Figure 9. Body-Diode Characteristics

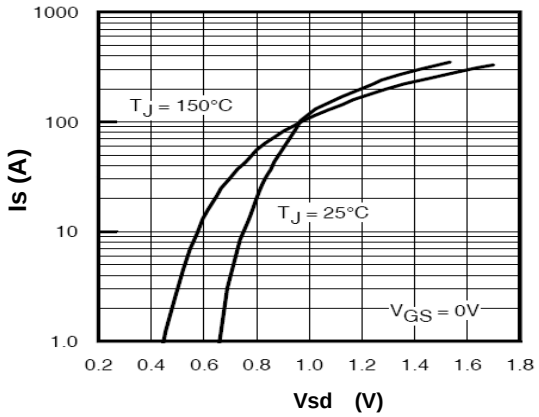


Figure 10. Maximum Safe Operating Area

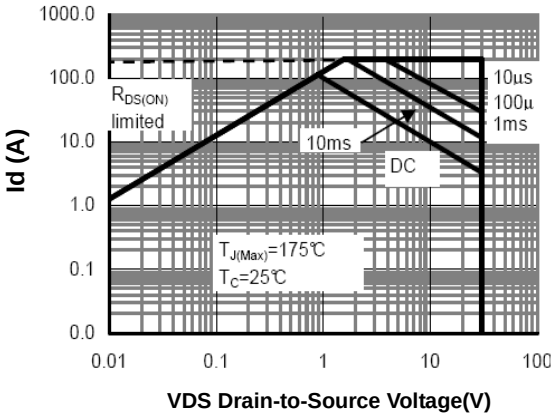
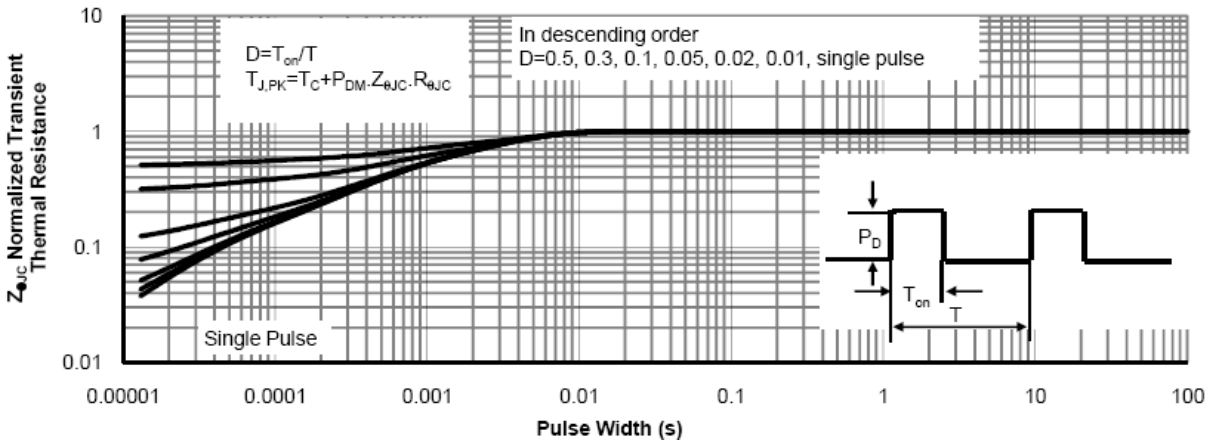


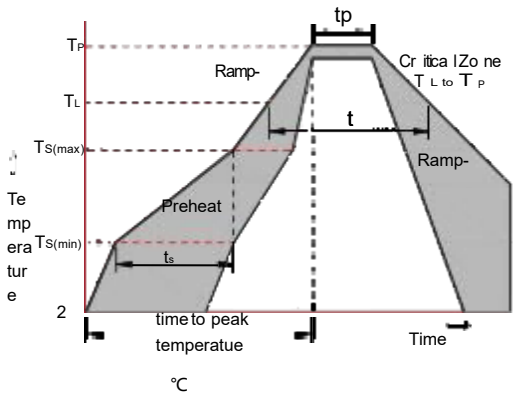
Figure 11. Normalized Maximum Transient Thermal Impedance



Soldering parameters

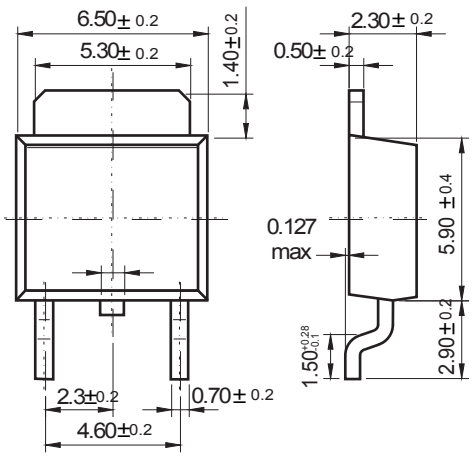
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid 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

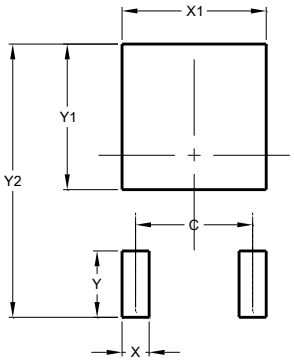


Package Dimensions & Suggested Pad Layout

TO-252



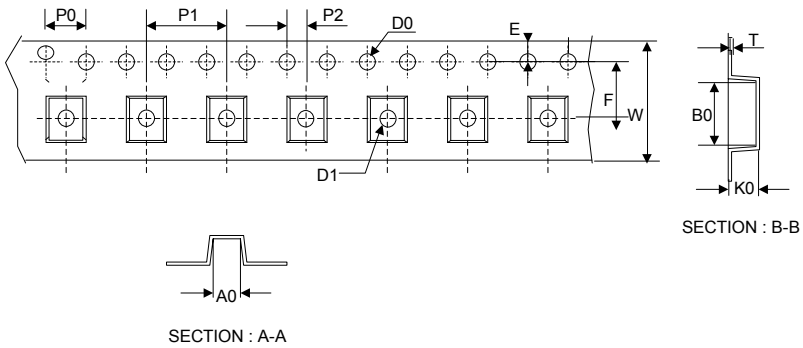
Dimensions in inches and (millimeters)



Dimensions	Value (in mm)
C	4.55
X	1.50
X1	5.80
Y	2.70
Y1	6.00
Y2	10.90

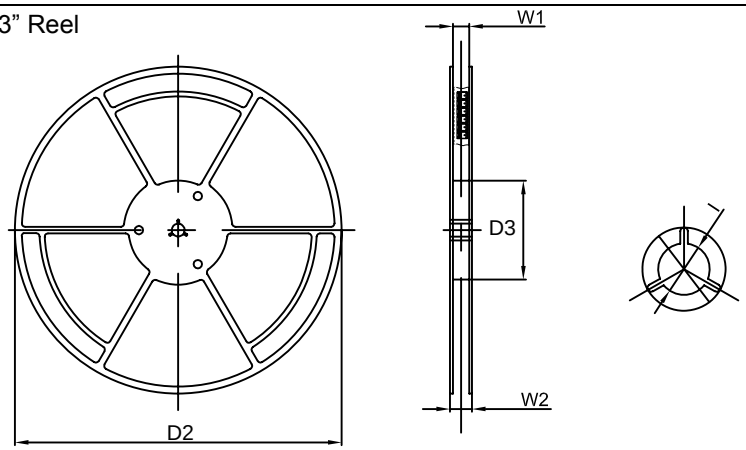
Tape & rell specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	8.00±0.20
P2	2.00±0.20
D0	1.55±0.15
D1	1.55±0.20
E	1.75±0.20
F	7.50±0.20
W	16.00±0.20
A0	7.10±0.20
B0	10.50±0.20
K0	2.70±0.20
T	0.30±0.10

13” Reel



D2	330.0±5.0
D3	100.0±4.0
W1	20.0±5.0
W2	25.0±5.0
I	13.0±2.0

Quantity: 2500PCS

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.