

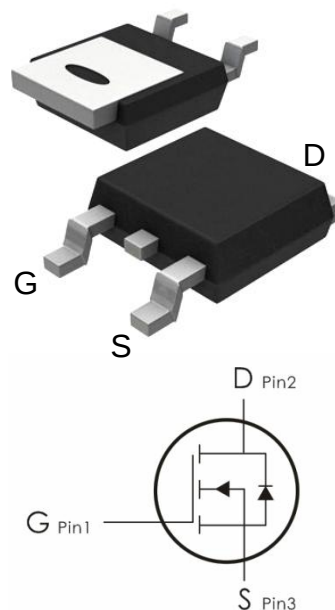
Description:

This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=40V, I_D=25A, R_{DS(ON)}<25m\Omega @V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
NTD5807NT4G-DO	5807NG	TO- 252	2500 pcs/Reel

Absolute Maximum Ratings: ($T_C=25^{\circ}C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	25	A
	Continuous Drain Current- $T_C=100^{\circ}C$	16	
I_{DM}	Pulsed Drain Current ¹	95	
E_{AS}	Single pulse avalanche energy	23	mJ
P_D	Power Dissipation	26	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-50 to 150	$^{\circ}C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	4.8	$^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62	$^{\circ}C/W$

Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	40	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =40V	---	---	1	μ A
		V _{GS} =0V, V _{DS} =32V	---	---	10	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	1.2	1.6	2.5	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =10V, I _D =12A	---	18	25	m Ω
		V _{GS} =4.5V, I _D =10A	---	25	35	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	500	799	pF
C _{oss}	Output Capacitance		---	70	119	
C _{rss}	Reverse Transfer Capacitance		---	39	79	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time ^{2,3}	V _{DD} =20V, I _D =1A, R _{ENG} =25 Ω ,V _{GS} =4.5V	---	2.2	5	ns
t _r	Rise Time ^{2,3}		---	7.6	15	ns
t _{d(off)}	Turn-Off Delay Time ^{2,3}		---	17	35	ns
t _f	Fall Time ^{2,3}		---	5	11	ns
Q _{gs}	Total Gate Charge ^{2,3}	V _{GS} =4.5V, V _{DS} =20V, I _D =5A	---	1.3	1.4	nc
Q _{gd}	Gate-Source Charge ^{2,3}		---	1.7	4	nc
Q _g	Gate-Drain “Miller” Charge ^{2,3}		---	3.5	9	nc
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A	---	---	1	V
I _S	Continuous Drain Current	VD=VG=0V	---	---	25	A
I _{SM}	Pulsed Drain Current		---	---	95	A

Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

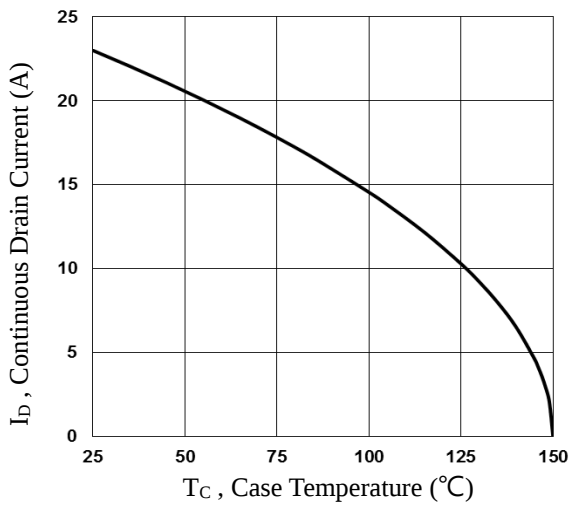


Fig.1 Continuous Drain Current vs. TC

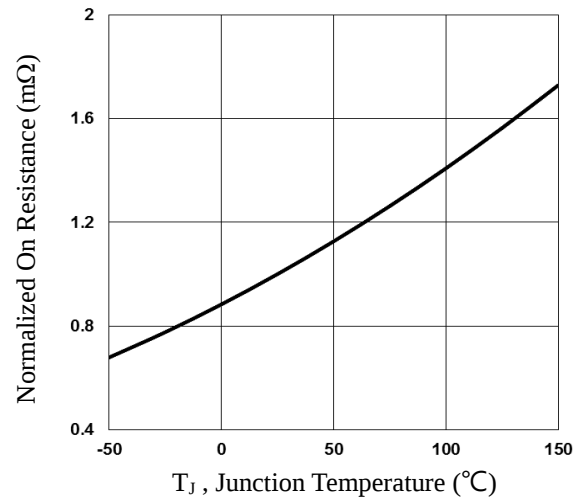


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

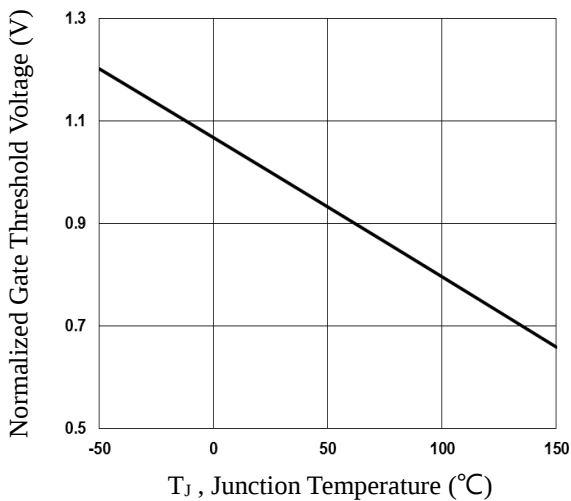


Fig.3 Normalized V_{th} vs. T_J

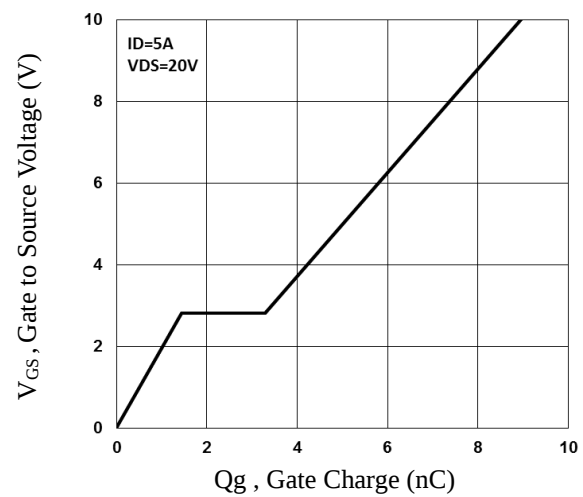


Fig.4 Gate Charge Characteristics

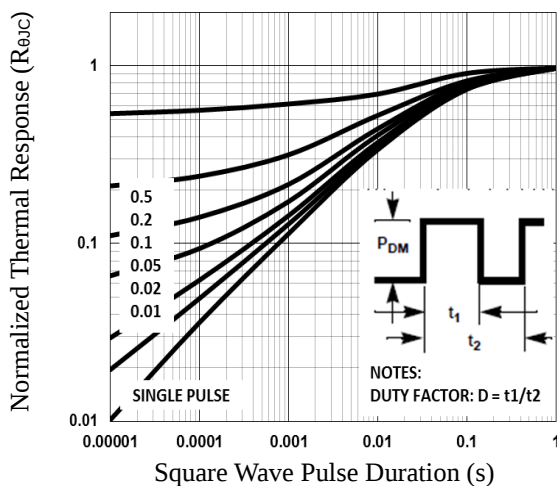


Fig.5 Normalized Transient Impedance

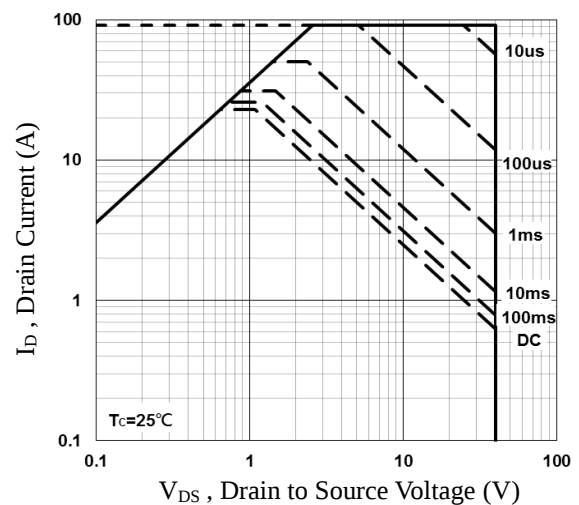


Fig.6 Maximum Safe Operation Area

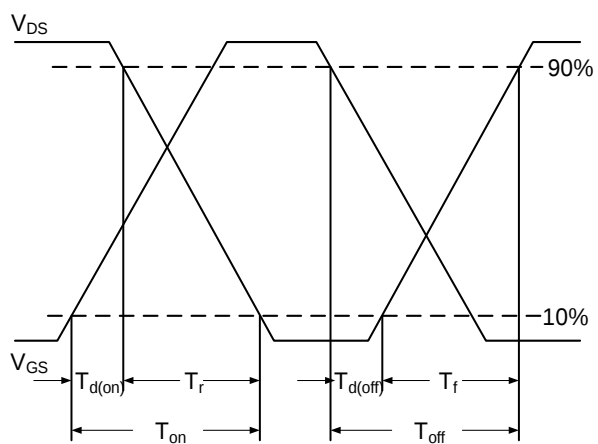


Fig.7 Switching Time Waveform

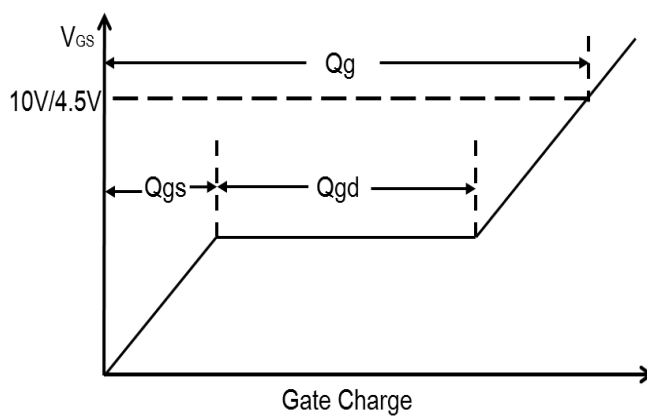
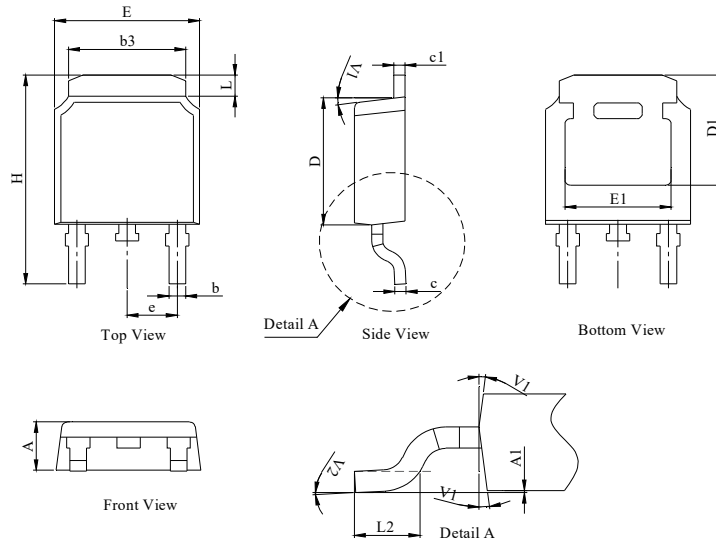


Fig.8 Gate Charge Waveform

TO-252 Package Information

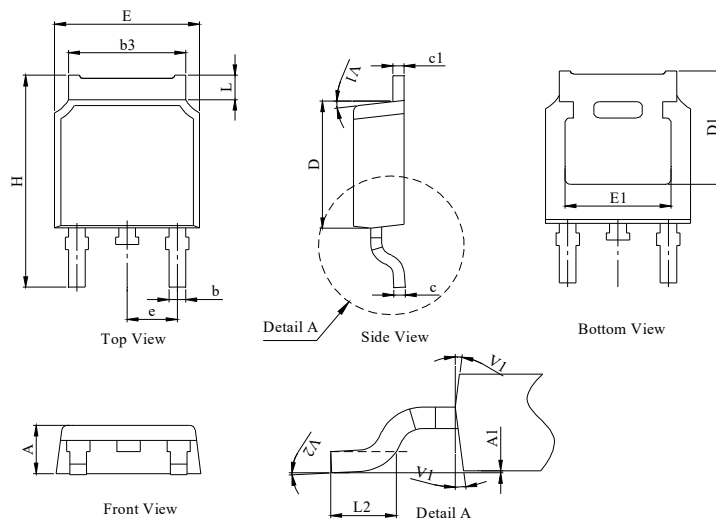
Package Outline Type-A

UNIT: mm



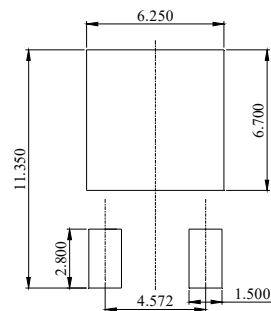
DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.18	2.30	2.39
A1	0	--	0.13
b	0.64	0.76	0.89
c	0.40	0.50	0.61
c1	0.46	0.50	0.58
D	5.97	6.10	6.23
D1	5.05	--	--
E	6.35	6.60	6.73
E1	4.32	--	--
b3	5.21	5.38	5.55
e	2.29 BSC		
H	9.40	10.00	10.40
L	0.89	--	1.27
L2	1.40	--	1.78
V1	7° REF		
V2	0°	--	6°

Package Outline Type-B



DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.10	2.30	2.40
A1	0	--	0.13
b	0.66	0.76	0.86
b3	5.21	5.38	5.55
c	0.40	0.50	0.60
c1	0.44	0.50	0.58
D	5.90	6.10	6.30
D1	5.30REF		
E	6.40	6.60	6.80
E1	4.63	-	-
e	2.29 BSC		
H	9.50	10.00	10.70
L	1.09	--	1.21
L2	1.35	--	1.65
V1	7° REF		
V2	0°	--	6°

Recommended Soldering Footprint



Marking Information:

①. Doingter LOGO

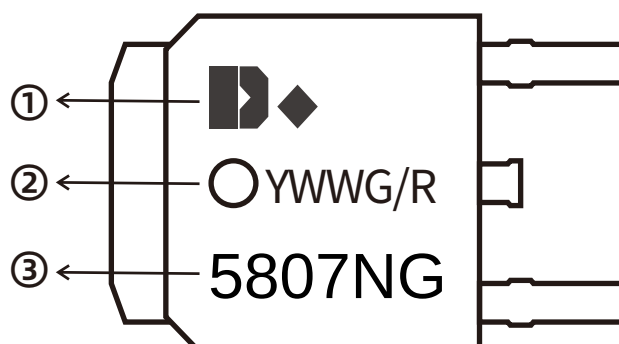
②. Date Code(YWWG / R)

Y : Year Code , last digit of the year

WW : Week Code(01-53)

G/R : G(Green) /R(Lead Free)

③. Part NO.

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