

Description:

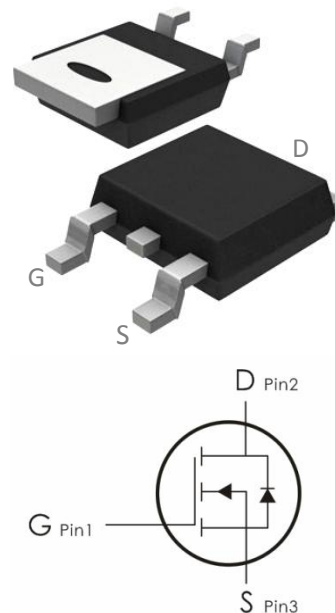
This N-Channel MOSFET uses advanced SGT technology and

design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=30V, I_D=80A, R_{DS(on)} < 4.8m\Omega @ V_{GS}=10V$
- 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
DOD80N03T	80N03T	TO- 252	2500 pcs/Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current, Silicon ($T_C = 25^\circ\text{C}$)	80	A
I_{DM}	Pulsed Drain Current ⁽⁴⁾	130	A
E_{AS}	Single Pulse Avalanche Energy ⁽⁵⁾	35	mJ
P_D	Power Dissipation ($T_C = 25^\circ\text{C}$)	46	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
R_{thJC}	Thermal Resistance, Junction to Case	2.7	$^{\circ}\text{C}/\text{W}$
R_{thJA}	Thermal Resistance Junction to mbient	62	$^{\circ}\text{C}/\text{W}$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	30	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =30V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μ A	1	---	2	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =10V, I _D =10A	---	4	4.8	m Ω
		V _{GS} =4.5V, I _D =10A	---	5.8	7.9	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	950	---	PF
C _{OSS}	Output Capacitance		---	400	---	
C _{rss}	Reverse Transfer Capacitance		---	58	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =15V , V _{GS} =10V R _G =3 Ω , I _D =20A	---	7	---	ns
t _r	Rise Time		---	2.8	---	ns
t _{d(off)}	Turn-Off Delay Time		---	21.4	---	ns
t _f	Fall Time		---	5.3	---	ns
Q _g	Total Gate Charge	V _{GS} =0 to10V, V _{DD} =15V, I _D =20A	---	17.4	---	nC
Q _{gs}	Gate-Source Charge		---	3.4	---	nC
Q _{gd}	Gate-Drain Charge		---	3.1	---	nC
g _{fs}	Gate Plateau Voltage	V _{DD} =15V, I _D =20A	---	85	---	S
Drain-Source Diode Characteristics						

V_{SD}	Source-Drain Diode Forward Voltage	V _{GS} =0V, I _{SD} =10A	---	0.8	---	V
trr	Continuous Source Current	V _{GS} =0V, I _F =10A, dI _F /dt=100A/us	---	12.3	---	ns
qrr	Pulsed Source Current		---	17.6	---	nC

Notes:

1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Limited by package.
3. Rated according to R_{θJC}.
4. Limited by maximum T_J.
5. T_A = 25°C, L = 0.1mH, I_{AS} = 17A.

Typical Characteristics: (T_C=25°C unless otherwise noted)

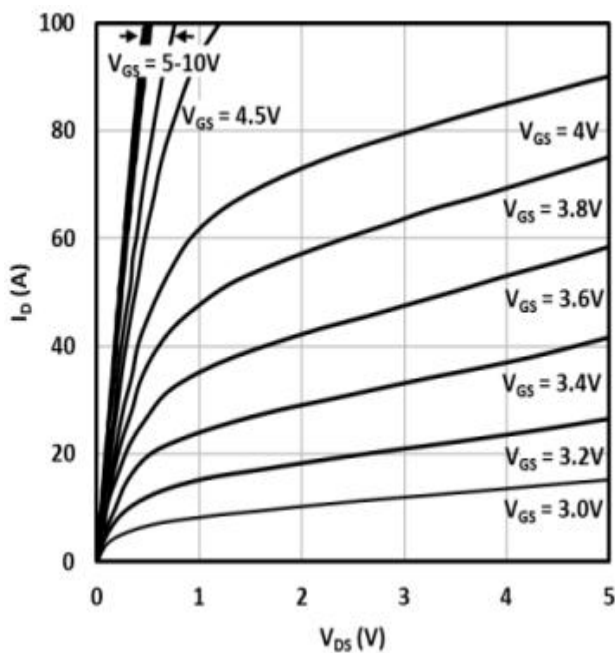


Figure 1: Output Characteristics

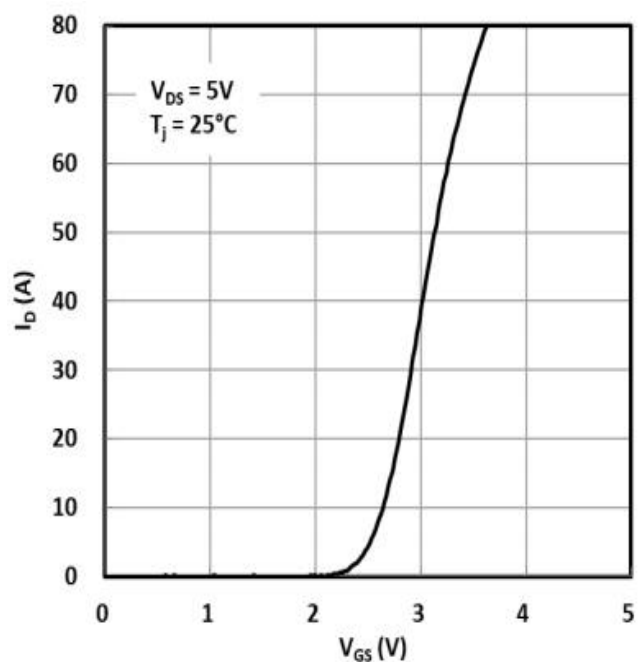


Figure 2: Transfer Characteristics

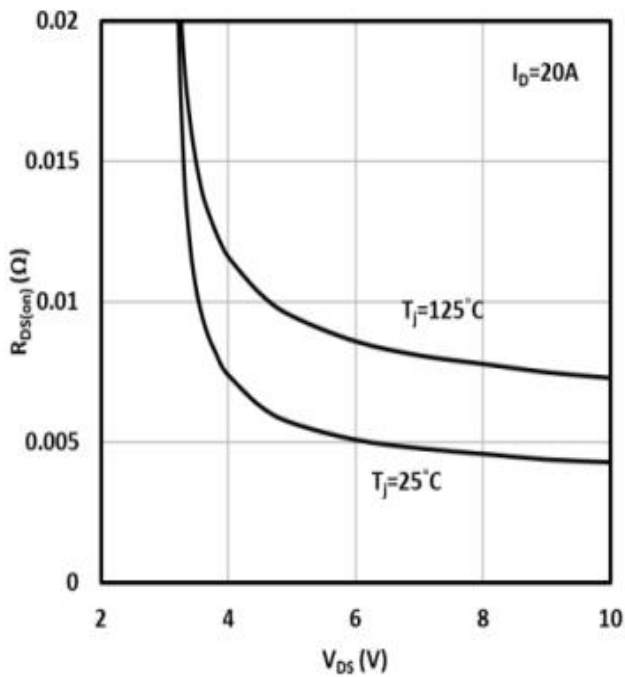


Figure3: On-resistance Vs. Gate voltage

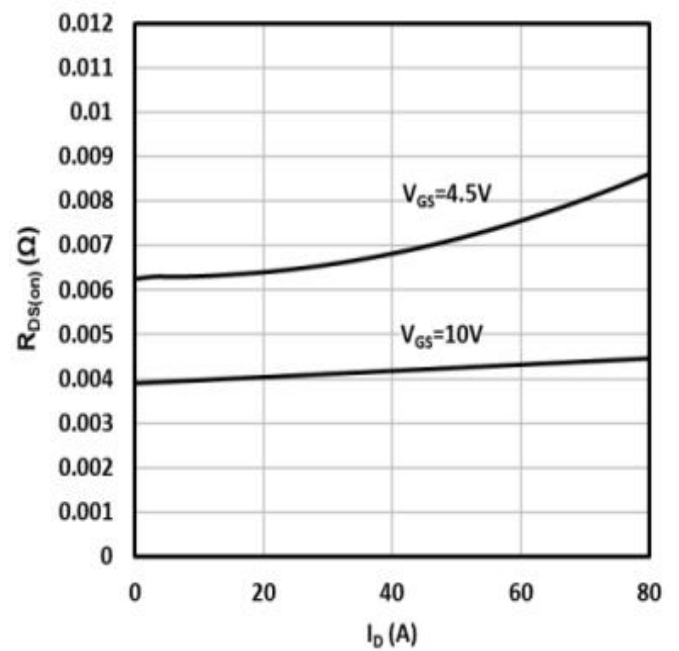


Figure4: On-resistance vs. Drain current

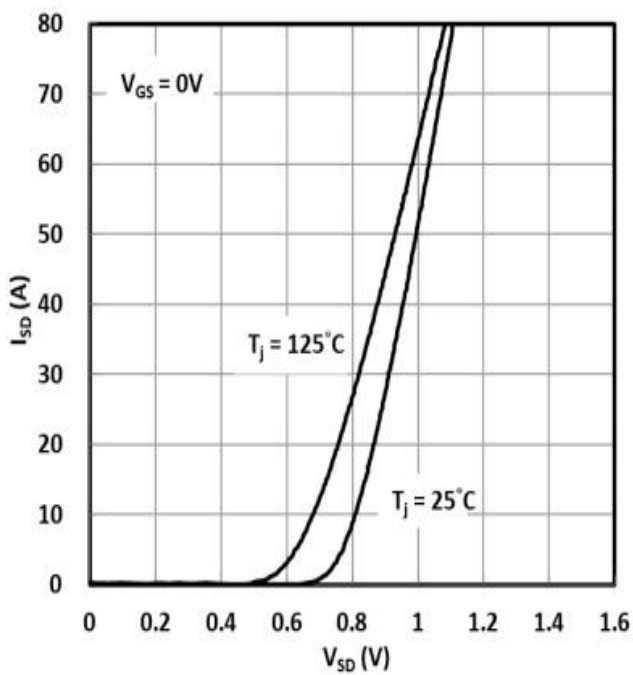


Figure 5:Source to drain diode forward Characteristics

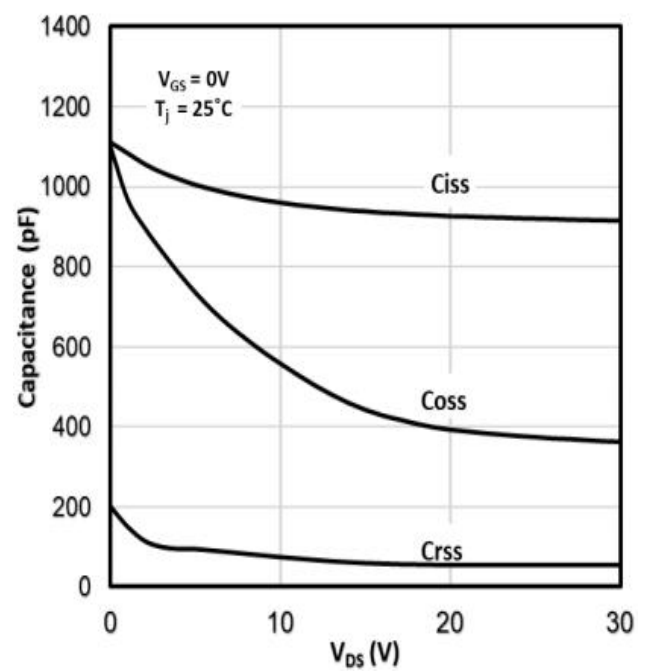


Figure 6: Capacitance vs. Drain-to-Source voltage

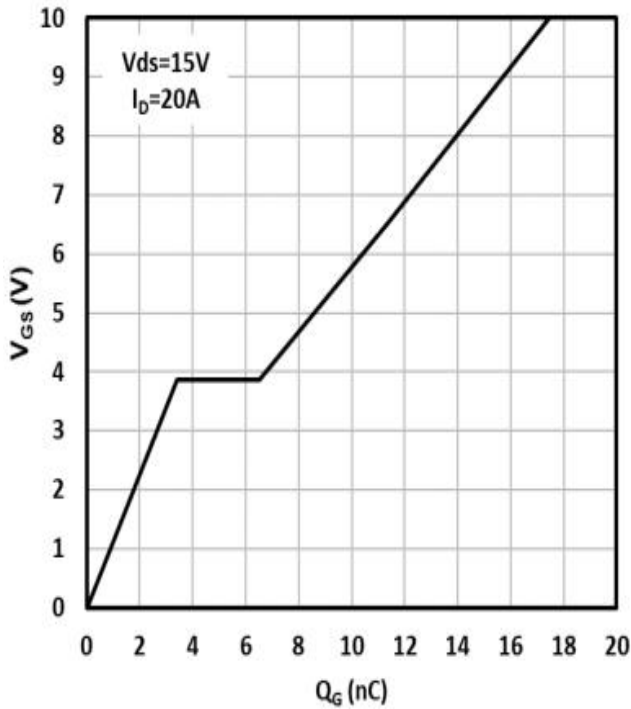


Figure7: Gate-to-Source voltage vs. Gate charge

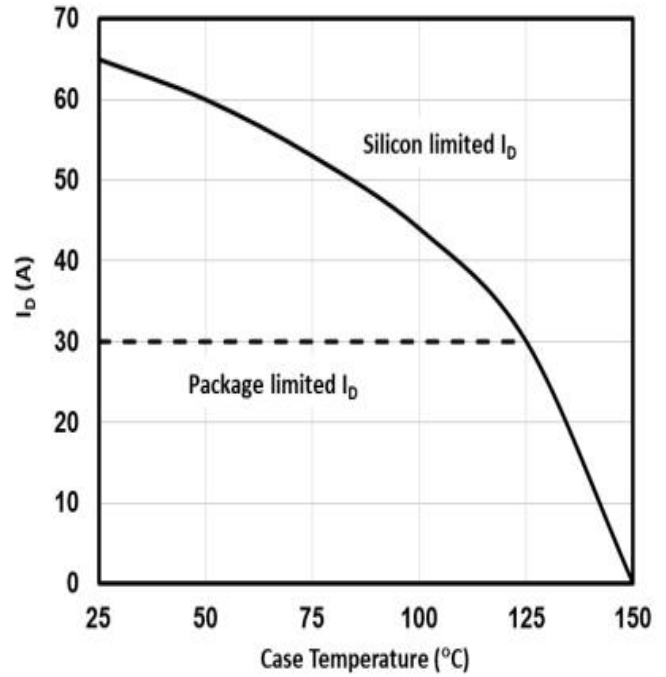


Figure8 : Maximum Drain current vs. Case temperature

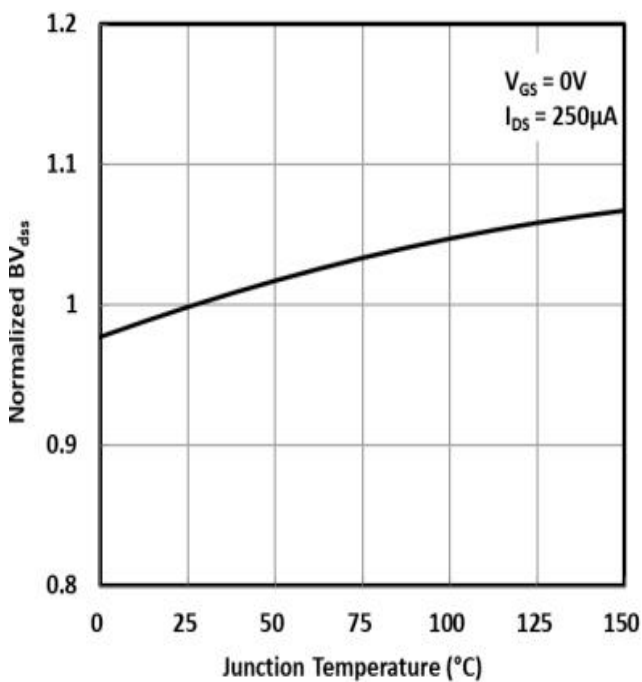


Figure 9 : Normalized drain-to-source breakdown vs. temperature

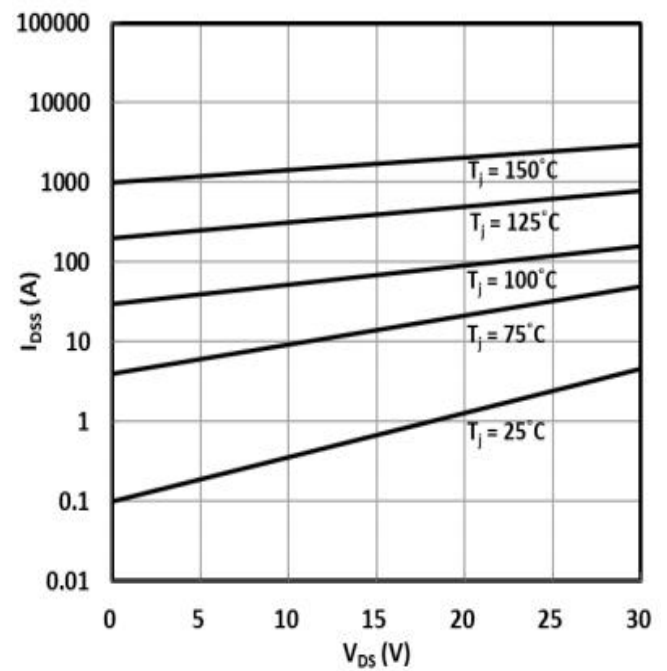


Figure 10: Drain-to-source leakage current vs. voltage

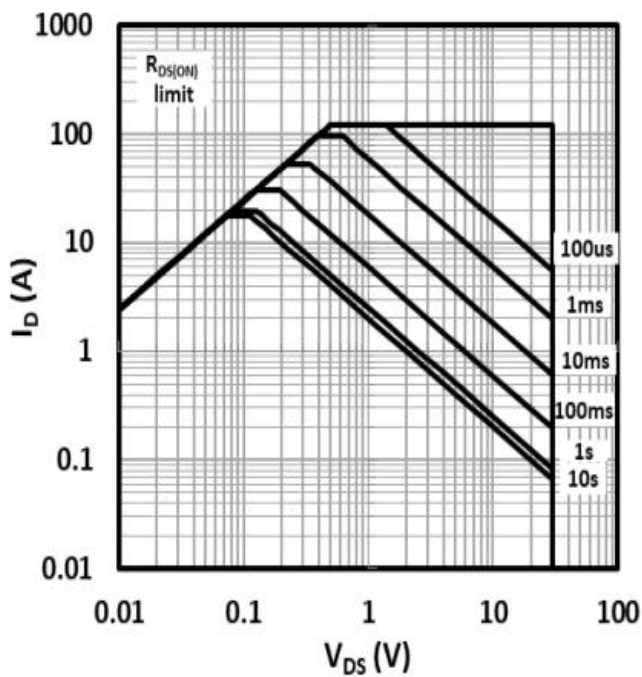


Figure11: Safe operating area

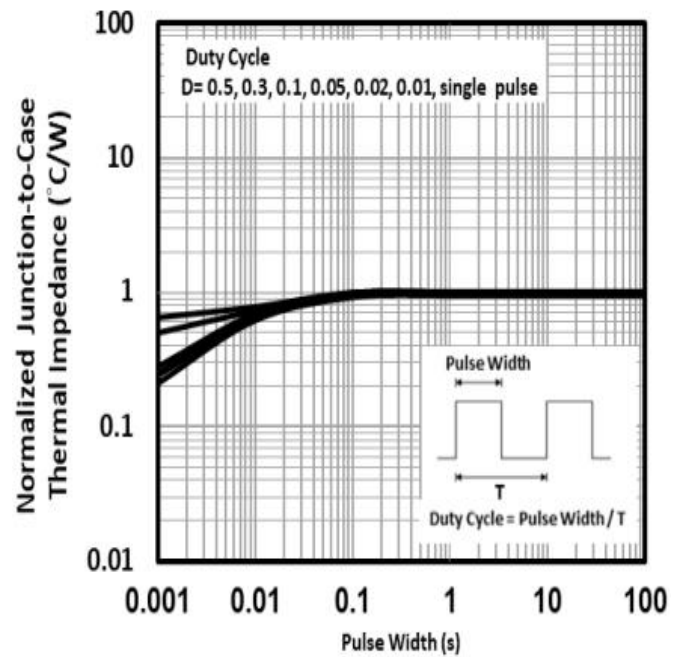


Figure12: Junction-to-case thermal impedance

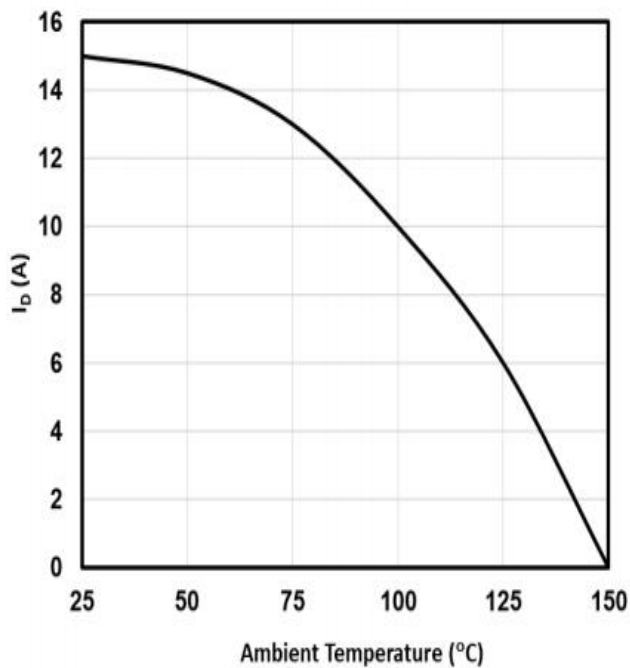
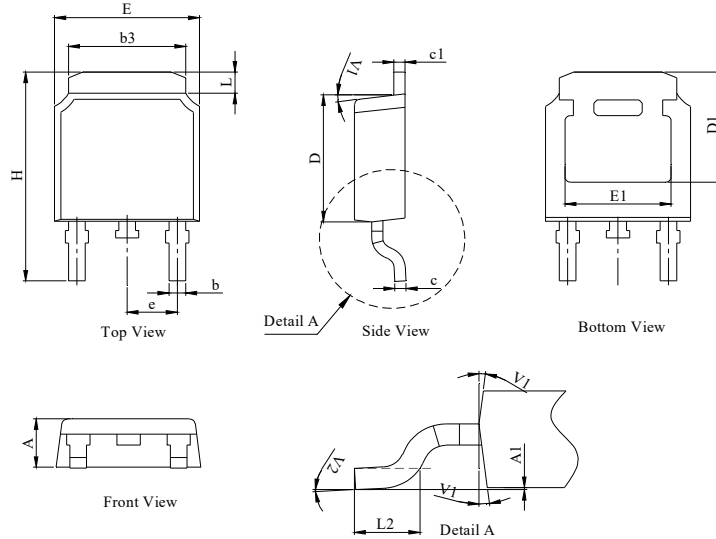


Figure 13:Maximum Drain current vs.Ambient temperature

TO-252 Package Information

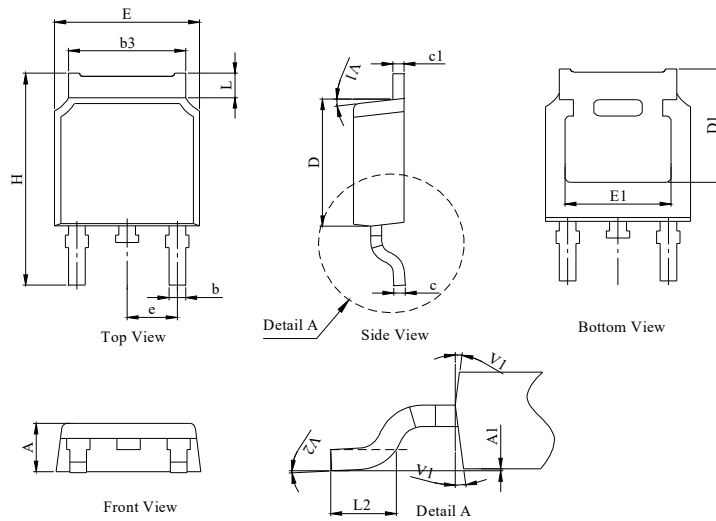
Package Outline Type-A

UNIT: mm



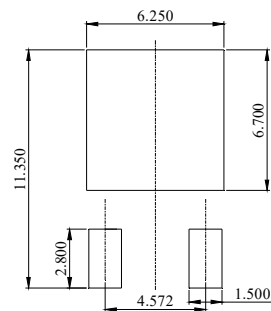
DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.18	2.30	2.39
A1	0	--	0.13
b	0.64	0.76	0.89
c	0.40	0.50	0.61
c1	0.46	0.50	0.58
D	5.97	6.10	6.23
D1	5.05	--	--
E	6.35	6.60	6.73
E1	4.32	--	--
b3	5.21	5.38	5.55
e	2.29 BSC		
H	9.40	10.00	10.40
L	0.89	--	1.27
L2	1.40	--	1.78
V1	7° REF		
V2	0°	--	6°

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

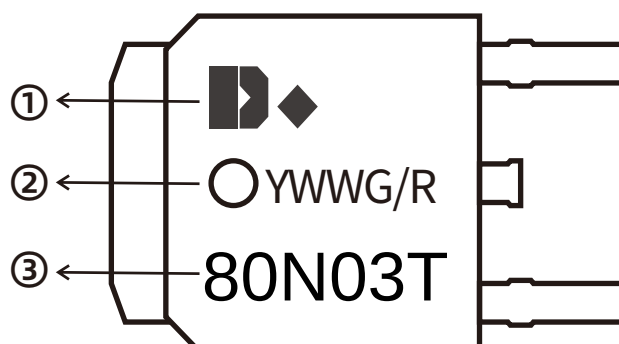
②. Date Code(YWWG / R)

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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