

S-LDN7403HDT3WG

40V N-Channel Power Dual MOSFET

1. FEATURES

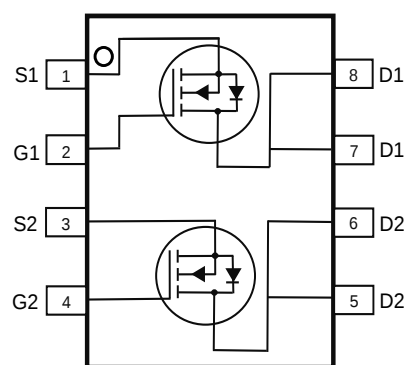
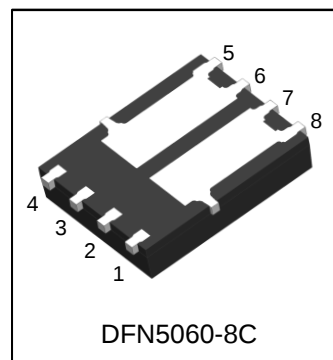
- $R_{DS(on)} \leq 4.2m\Omega @ V_{GS}=10V$
- Low thermal impedance.
- Fast switching.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S-prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

2. APPLICATIONS

- Power Tools
- DC/DC conversion
- Motor Control

3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
S-LDN7403HDT3WG	LDN7403H	5000/Tape&Reel



4. MAXIMUM RATINGS

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	40	V
Gate-to-Source Voltage		VGS	± 20	V
Continuous Drain Current(Note 1)	TA =25°C	ID	22	A
	TA =100°C		16	
Pulsed Drain Current(Note 2)	TA =25°C	IDM	88	
Continuous Drain Current	TC =25°C	ID	90	A
	TC =100°C		60	
Pulsed Drain Current	TC =25°C	IDM	360	
Avalanche Current		IAS	34	A
Avalanche energy(L=0.1mH)		EAS	58	mJ
Power Dissipation(Note 1)	TA =25°C	PD	2.3	W
	TA =100°C		1.2	
Power Dissipation	TC =25°C		100	
	TC =100°C		50	
Operating Junction and Storage Temperature Range		TJ , TSTG	-55~+175	°C

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Junction-to-Ambient(Note 1)	RθJA	65	°C/W
Junction-to-Case	RθJC	1.5	

Note:1.Surface mounted on "1.5in x 1.5in" FR4 board using 1*1 in pad, 2 oz Cu.

2.Pulse width limited by maximum junction temperature.

6. ELECTRICAL CHARACTERISTICS(T_J=25°C unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain to Source Breakdown Voltage (V _{GS} = 0 V, I _D = 250 μ A)	BVDSS	40	-	-	V
Gate-Source Threshold Voltage (V _{DS} = V _{GS} , I _D = 250 μ A)	V _{GS(th)}	2.1	-	3.9	V
Gate-Body Leakage (V _{DS} = 0 V, V _{GS} = $\pm$ 20 V)	I _{GSS}	-	-	$\pm$ 90	nA
Zero Gate Voltage Drain Current (V _{DS} = 40 V, V _{GS} = 0 V)	I _{DSS}	-	-	0.9	μ A
Drain-Source On-Resistance(Note 3) (V _{GS} = 10 V, I _D = 20 A)	R _{DS(on)}	-	3.9	4.2	m Ω
Dynamic					
Input Capacitance	(V _{DS} = 20 V, V _{GS} = 0 V, f = 100kHz)	C _{iss}	-	2150	pF
Output Capacitance		C _{oss}	-	1100	
Reverse Transfer Capacitance		C _{rss}	-	110	
Total Gate Charge	(V _{DS} = 20 V, V _{GS} = 10 V, I _D = 40 A)	Q _g	-	37	nC
Gate-Source Charge		Q _{gs}	-	11	
Gate-Drain Charge		Q _{gd}	-	12	
Turn-On Delay Time	(V _{DS} = 20 V, I _D = 40 A, V _{GEN} = 4.5 V, R _{GEN} = 1 Ω)	t _{d(on)}	-	32	ns
Rise Time		t _r	-	38	
Turn-Off Delay Time		t _{d(off)}	-	14	
Fall Time		t _f	-	18	
Gate Resistance (V _{DS} = 0 V, V _{GS} = 0 V, f = 1.0MHz)	R _g	-	2.2	-	Ω
Diode characteristics					
Continuous Current TC = 25°C	I _S	-	-	90	A
Plused Current TC = 25°C	I _{SM}	-	-	360	A
Diode Forward Voltage (I _S = 20 A, V _{GS} = 0 V)	V _{SD}	-	0.8	1.2	V
Reverse Recovery Time (V _R =20V, I _F =15A, dI _F /dt=100A/us)	t _{rr}	-	77	-	ns
Reverse Recovery Charge (V _R =20V, I _F =15A, dI _F /dt=100A/us)	Q _{rr}	-	98	-	nC
Reverse Recovery Current (V _R =20V, I _F =15A, dI _F /dt=100A/us)	I _{RRM}	-	2.55	-	A

3.Pulse test: PW $\leq$ 300us duty cycle $\leq$ 2%.

7. ELECTRICAL CHARACTERISTICS CURVES

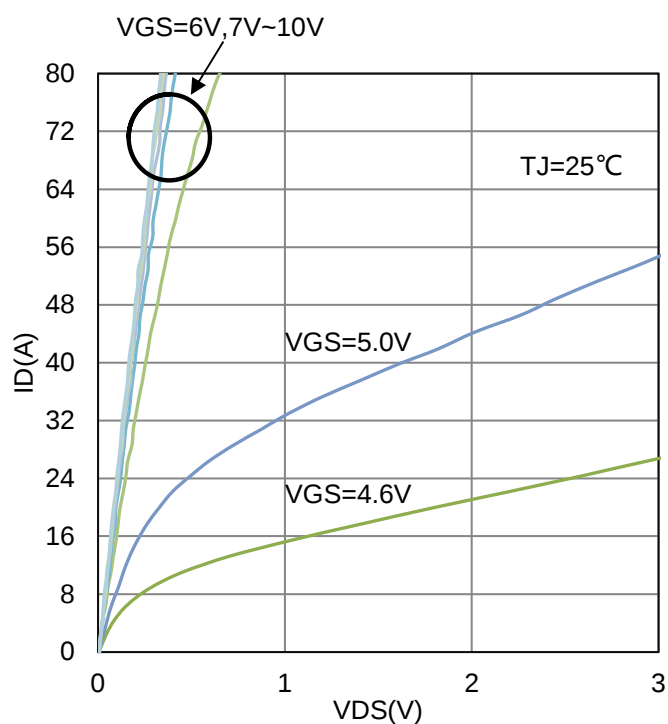


Figure 1. I_D vs. V_{DS}

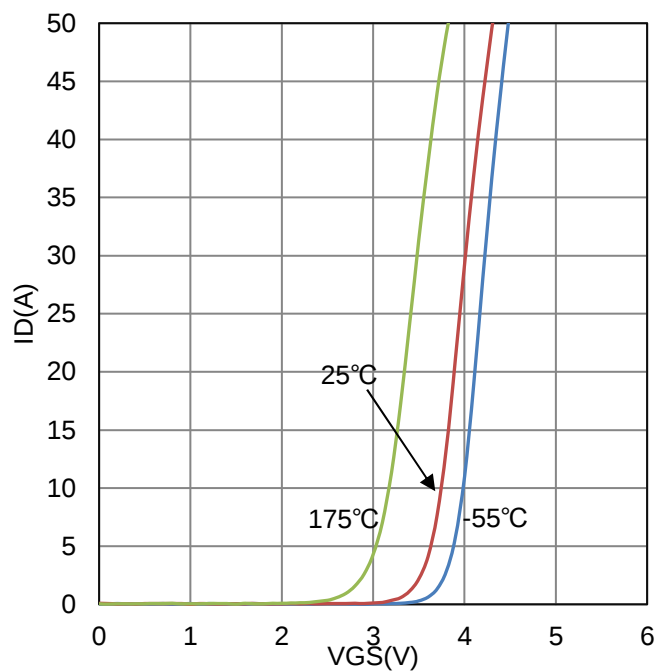


Figure 2. I_D vs. V_{GS}

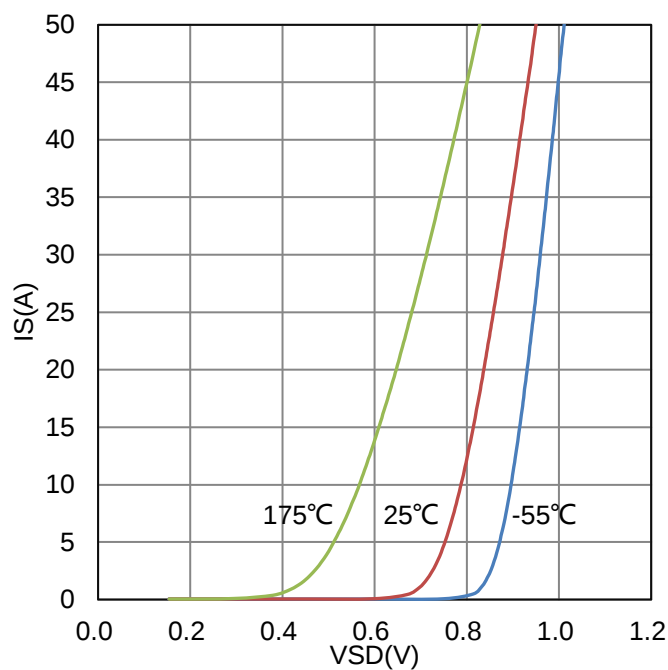


Figure 3. I_S vs. V_{SD}

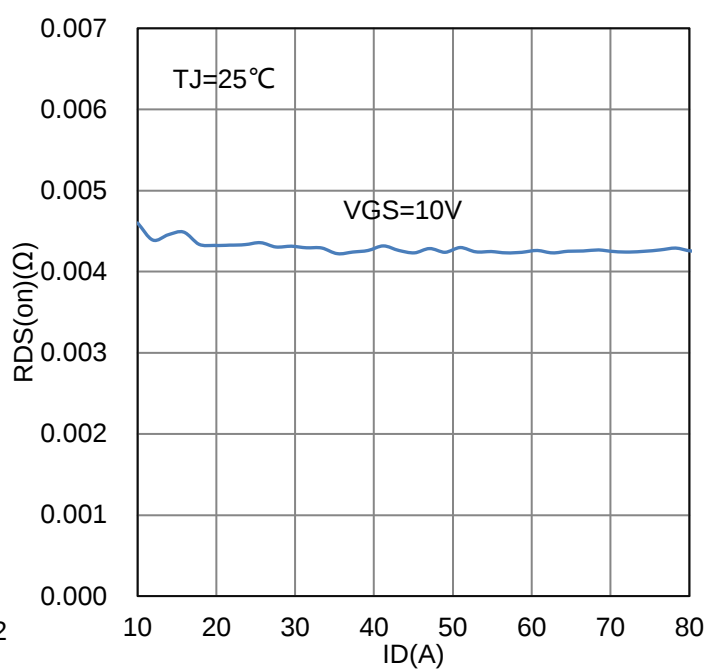


Figure 4. $R_{DS(on)}$ vs. I_D

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

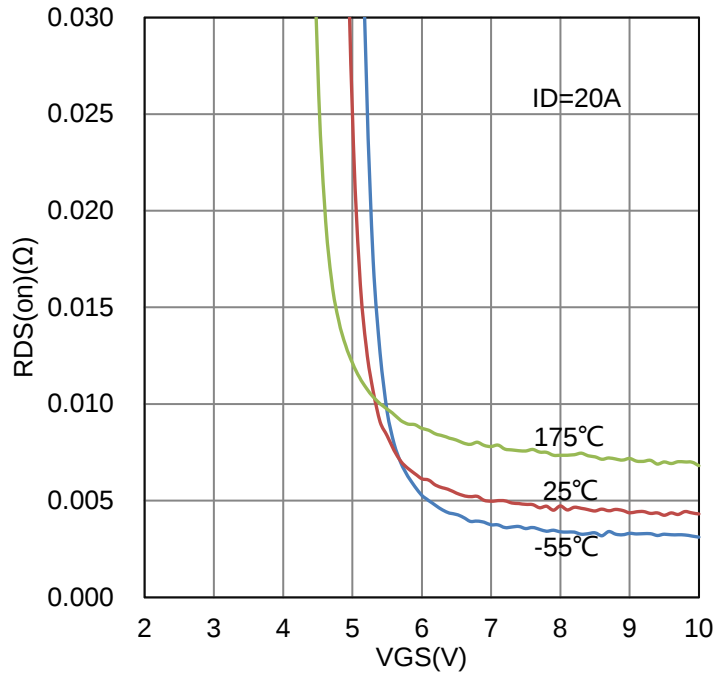


Figure 5. $R_{DS(on)}$ vs. V_{GS}

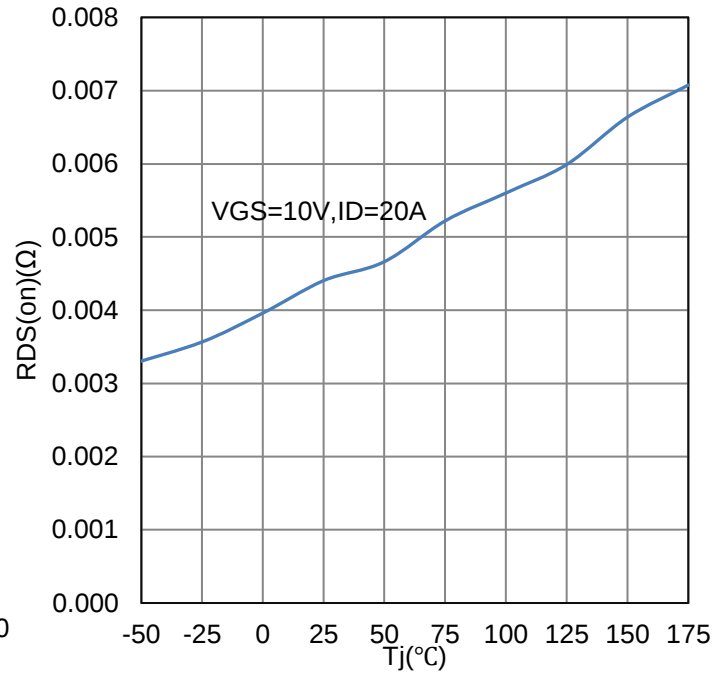


Figure 6. $R_{DS(on)}$ vs. T_j

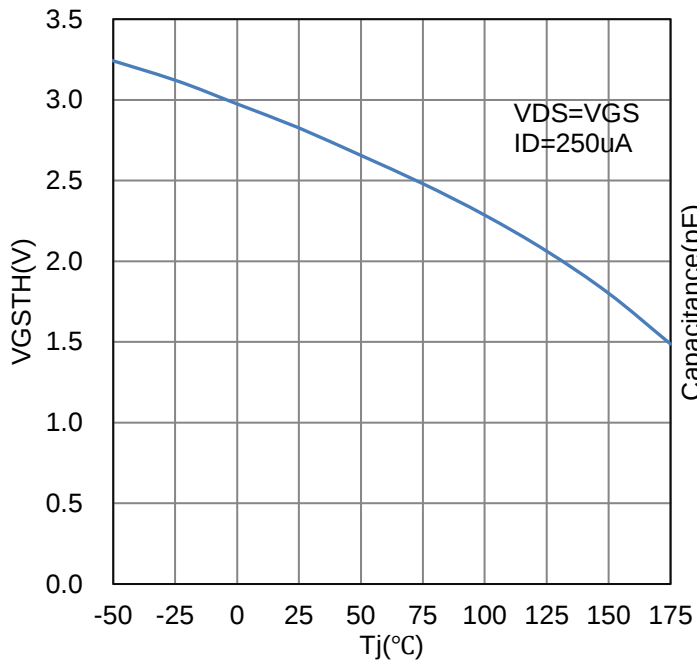


Figure 7. V_{GSth} vs. T_j

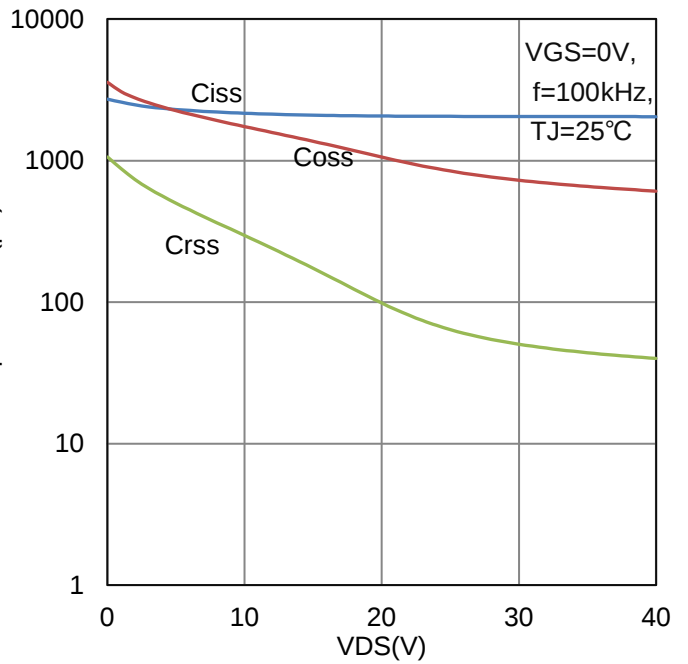


Figure 8. Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

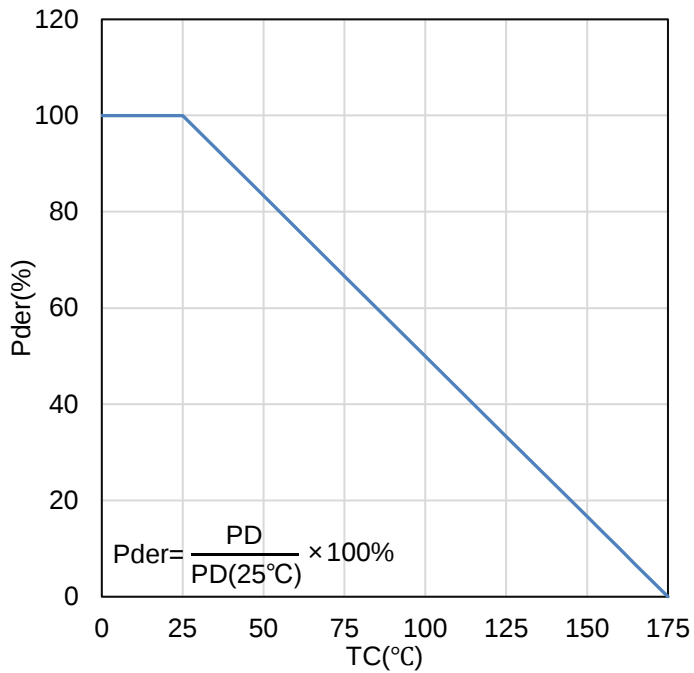


Figure 9.Normalized Derating Curve

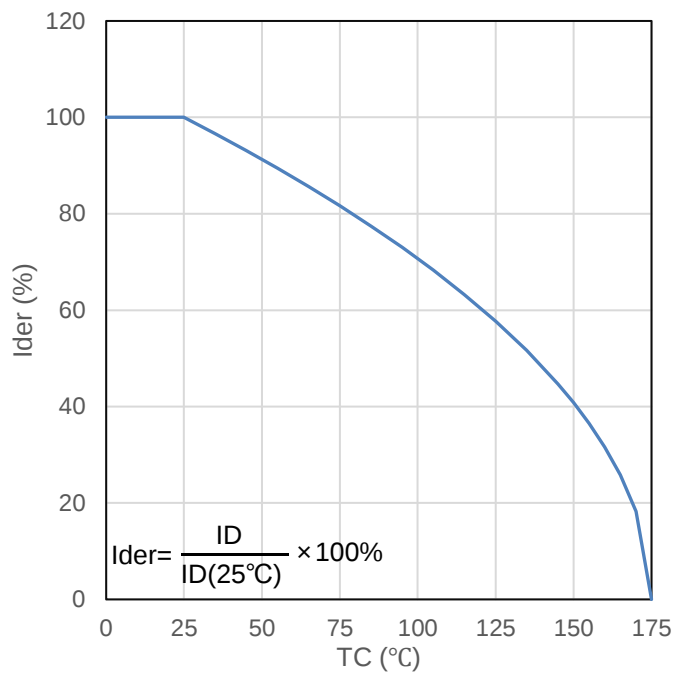


Figure 10.Normalized drain Current

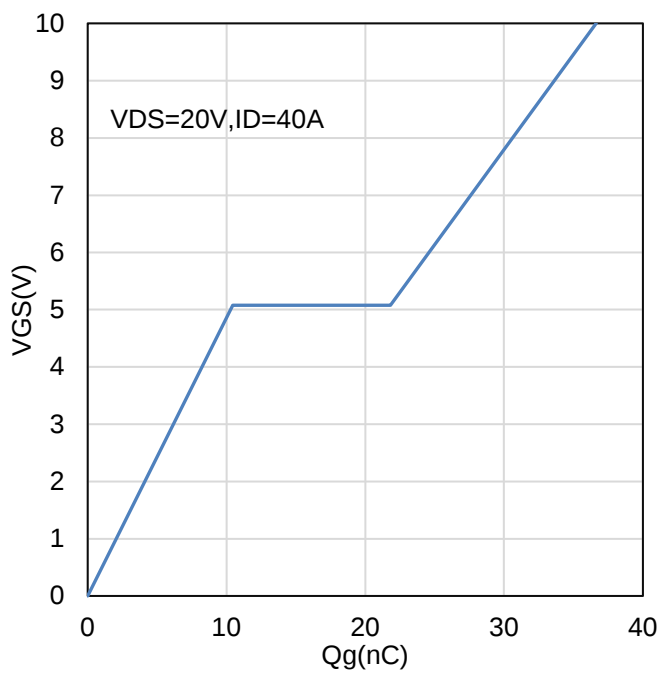


Figure 11. V_{GS} vs. Q_g

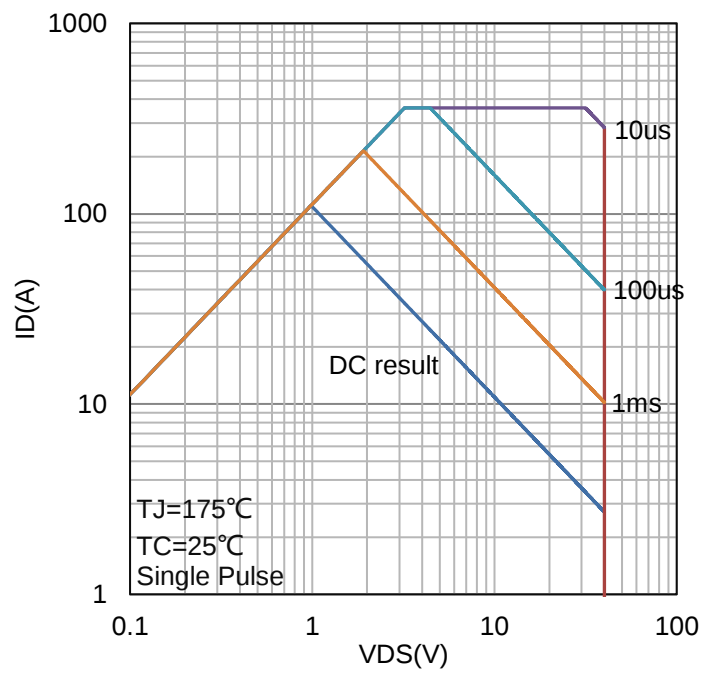
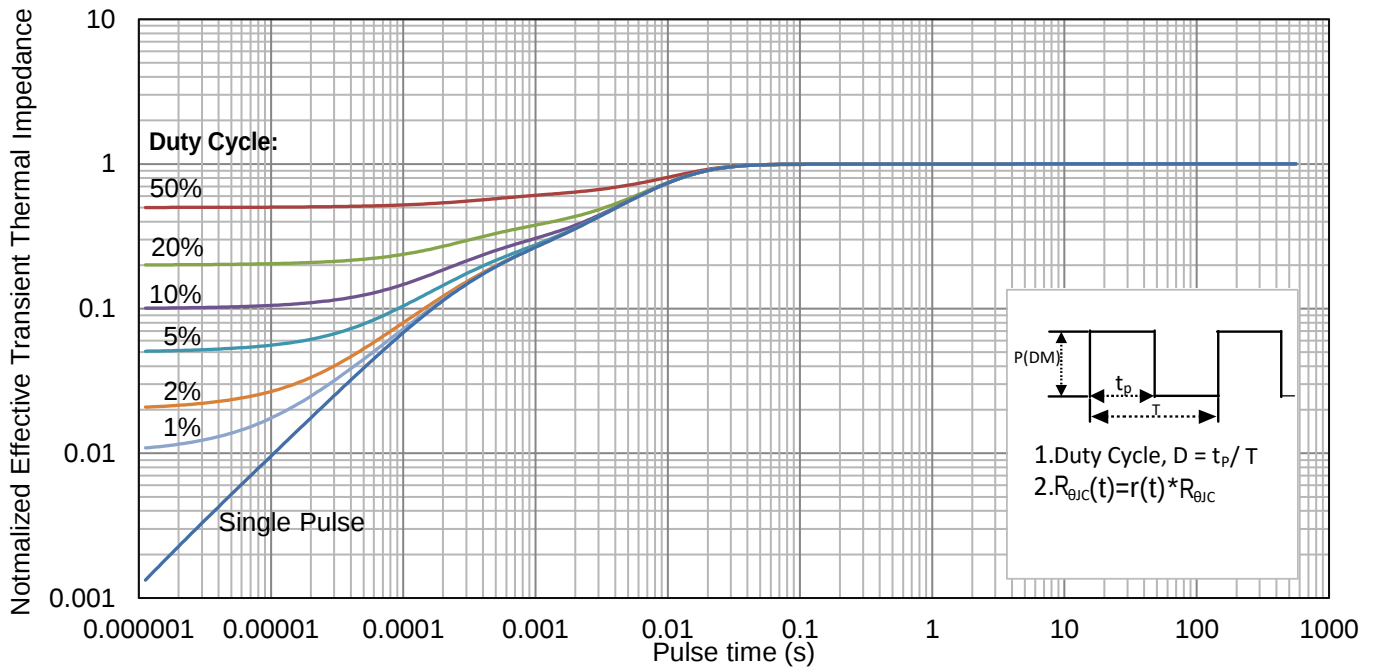
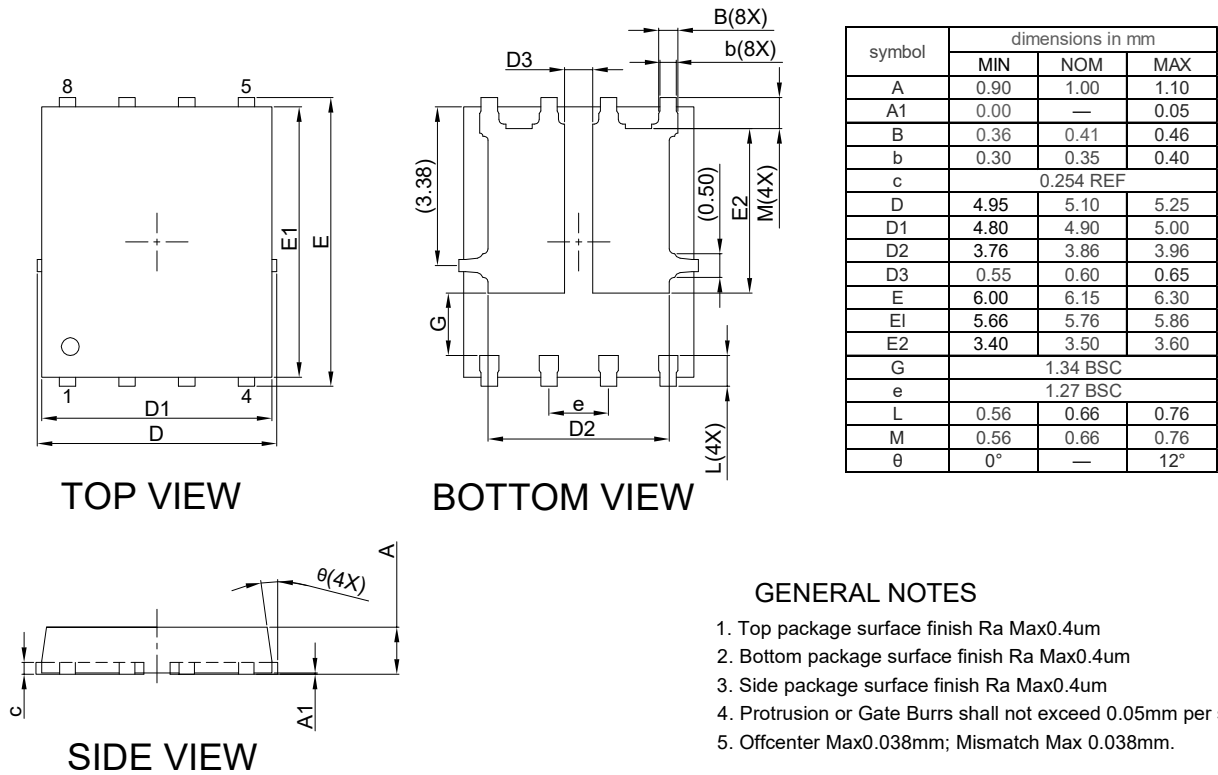
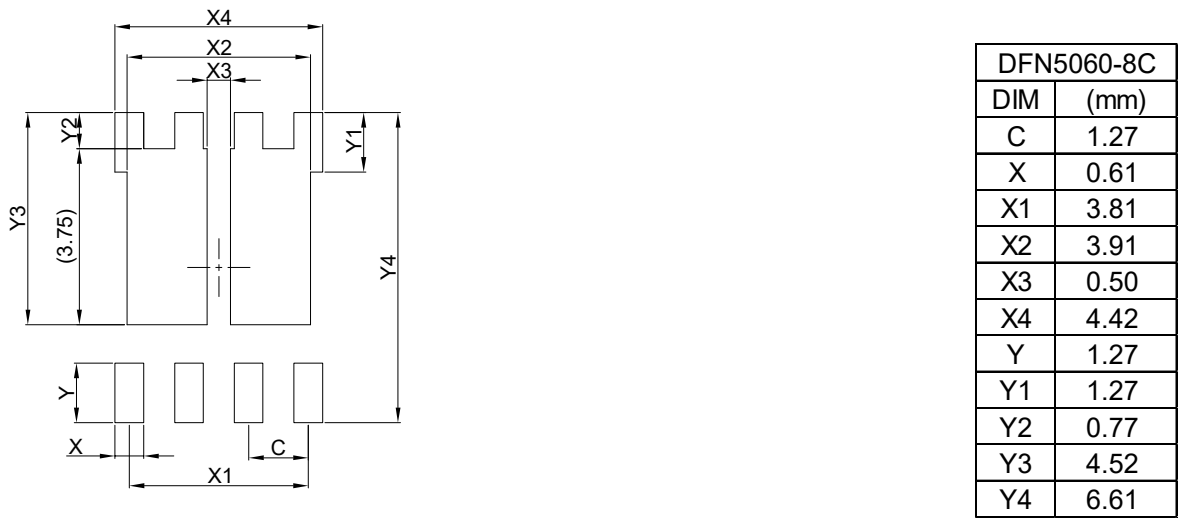


Figure 12.Safe Operating Area

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



8.OUTLINE AND DIMENSIONS**DFN5060-8C(T1.00)****9.SOLDERING FOOTPRINT**

DISCLAIMER

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