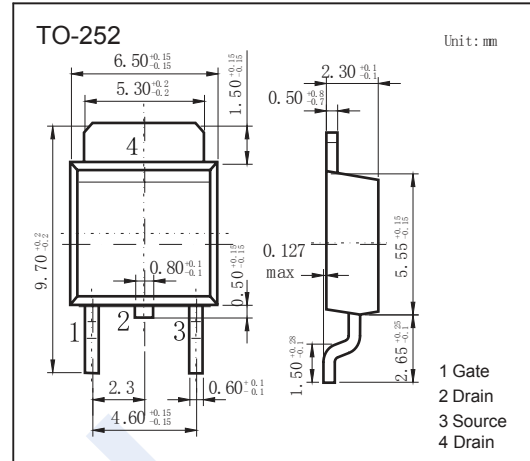
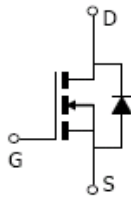


N-Channel MOSFET

NDT6N60

■ Features

- $V_{DS} (V) = 600V$
- $I_D = 6 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 1.7 \Omega (V_{GS} = 10V)$
- Low Gate Charge
- Low Reverse transfer capacitances



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 30	
Continuous Drain Current	I_D	6	A
		3.6	
Pulsed Drain Current	I_{DM}	24	
Avalanche Current	I_{AR}	2.5	mJ
Avalanche Energy , Repetitive	(Note.1) E_{AR}	31	
Single Pulse Avalanche Energy	E_{AS}	270	V/ns
Peak Diode Recovery dv/dt	(Note.2) dv/dt	5	
Power Dissipation	P_D	85	W
Derating Factor above $25^\circ C$		0.68	$W/^\circ C$
Thermal Resistance.Junction- to-Ambient	R_{thJA}	62.5	$^\circ C/W$
Thermal Resistance.Junction- to-Lead	R_{thJL}	1.47	
Junction Temperature	T_J	150	$^\circ C$
Maximum Temperature for Soldering	T_L	300	
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: $L=10mH$, $I_D=7.4A$, Start $T_J=25^\circ C$

Note.2: $I_{SD}=5A$, $di/dt \leq 100A/\mu s$, $V_{DD} \leq BV_{DS}$, Start $T_J=25^\circ C$

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{BSS}	I _D =250 μA, V _{GS} =0V	600			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =600V, V _{GS} =0V			1	μA
		V _{DS} =480V, V _{GS} =0V, Ta =125°C			100	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±30V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2		4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =3A			1.7	Ω
Forward Transconductance	g _{FS}	V _{DS} =15V, I _D =3A		6		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1MHz		815		pF
Output Capacitance	C _{oss}			74		
Reverse Transfer Capacitance	C _{rss}			2.7		
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =480V, I _D =6A		17		nC
Gate Source Charge	Q _{gs}			3.6		
Gate Drain Charge	Q _{gd}			6		
Turn-On DelayTime	t _{d(on)}	V _{DS} =300V, I _D =6A, R _{GEN} =10Ω		16		ns
Turn-On Rise Time	t _r			14		
Turn-Off DelayTime	t _{d(off)}			37		
Turn-Off Fall Time	t _f			9		
Body Diode Reverse Recovery Time	t _{rr}	I _F = 6A, di/dt= 100A/μs, T _J =25°C		280		nC
Body Diode Reverse Recovery Charge	Q _{rr}			1400		
Maximum Body-Diode Continuous Current	I _S				5	A
Maximum Pulsed Current (Body Diode)	I _{SM}				20	
Diode Forward Voltage	V _{SD}	I _S =6A, V _{GS} =0V			1.5	V

Note. Pulse width $t_p \leq 380 \mu s$, $\delta \leq 2\%$

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Typical Characteristics

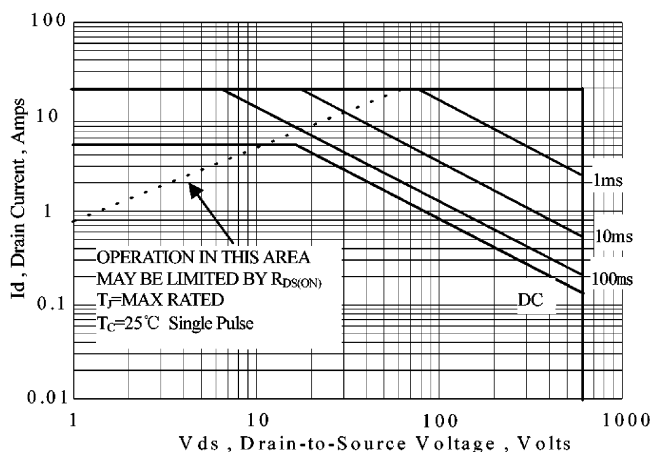


Figure 1 Maximum Forward Bias Safe Operating Area

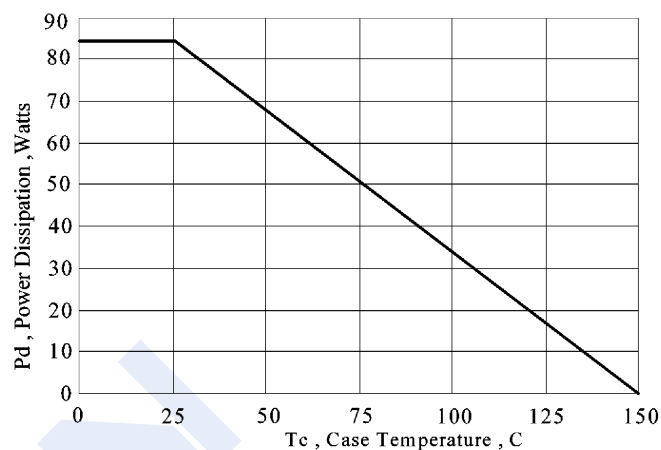


Figure 2 Maximum Power Dissipation vs Case Temperature

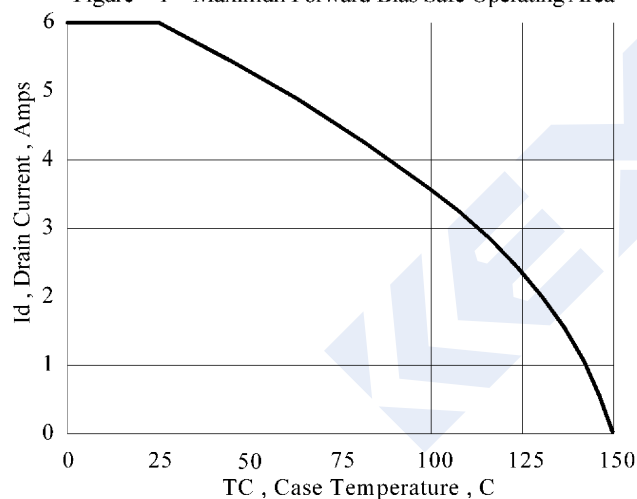


Figure 3 Maximum Continuous Drain Current vs Case Temperature

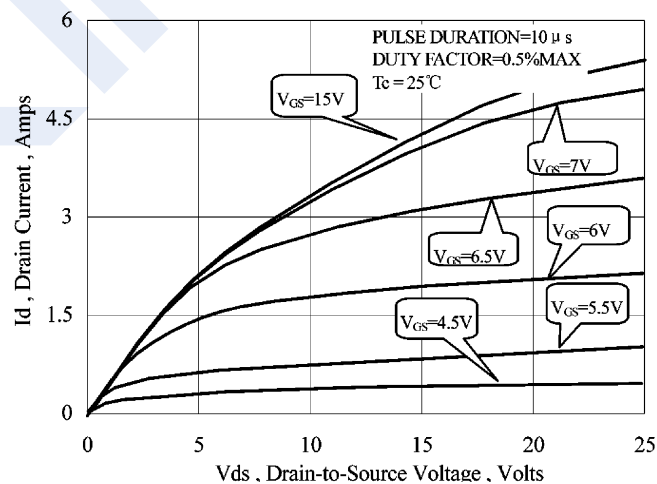


Figure 4 Typical Output Characteristics

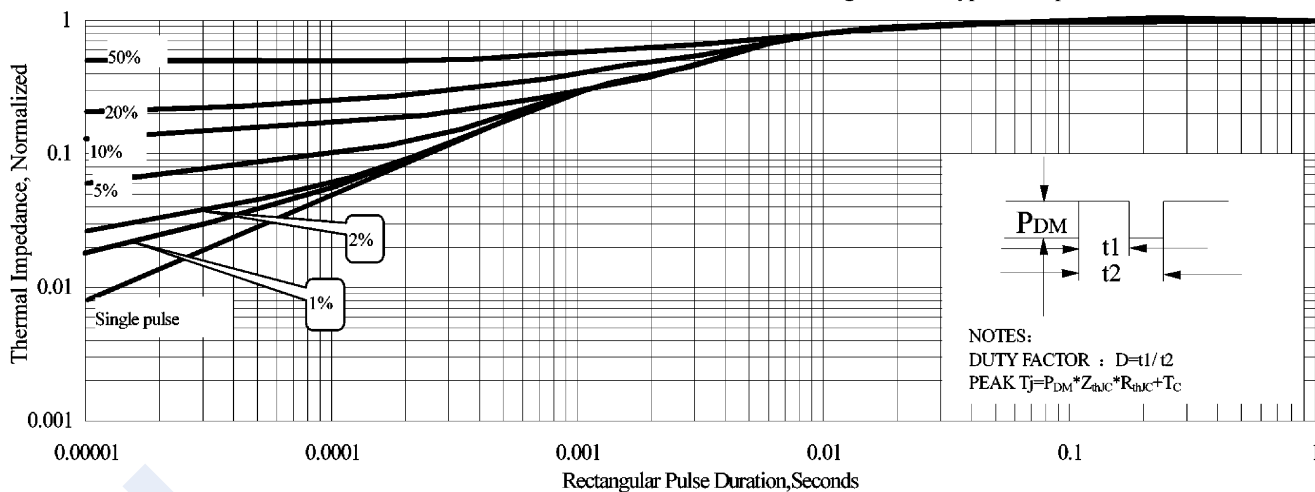
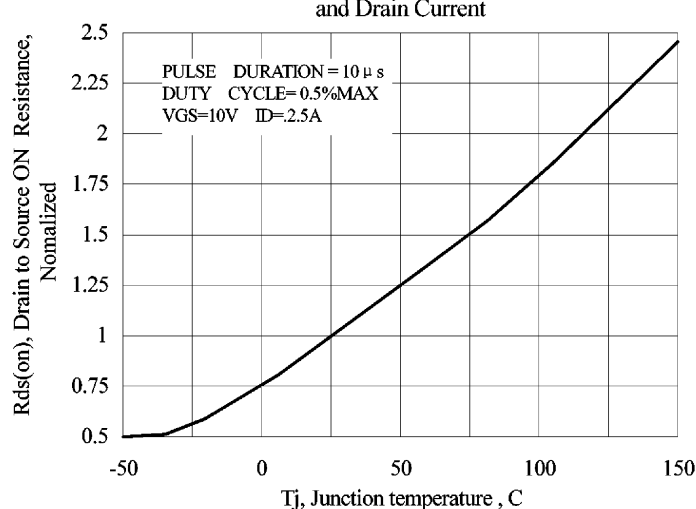
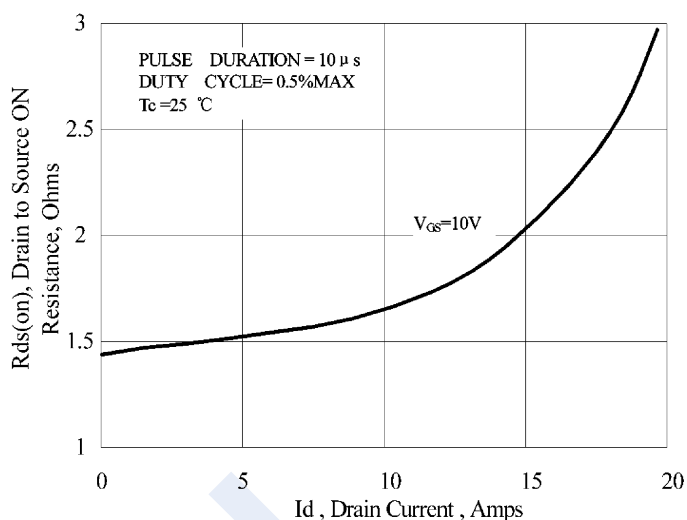
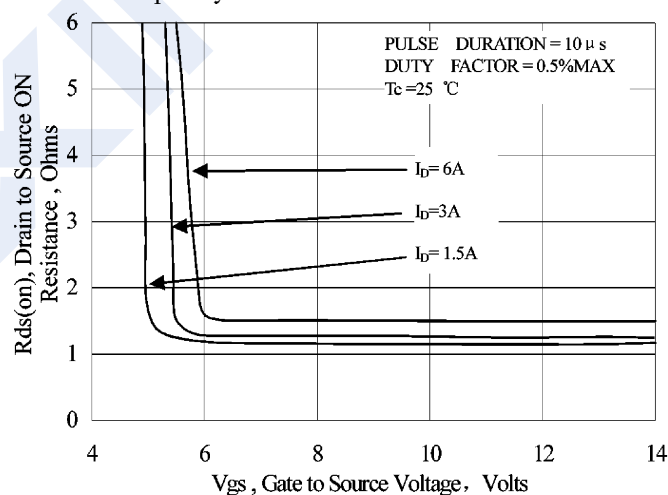
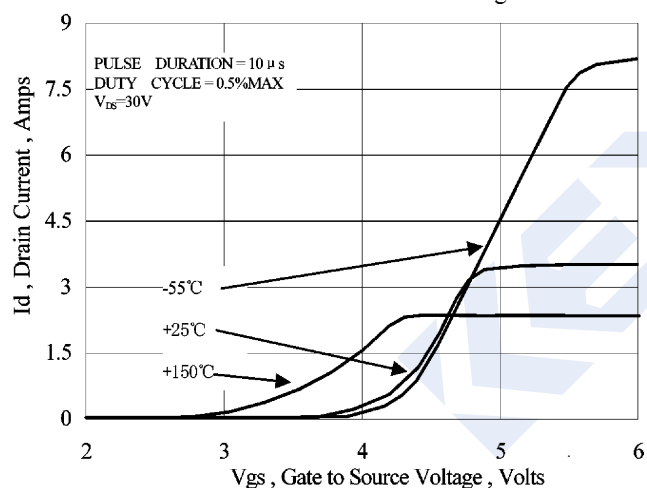
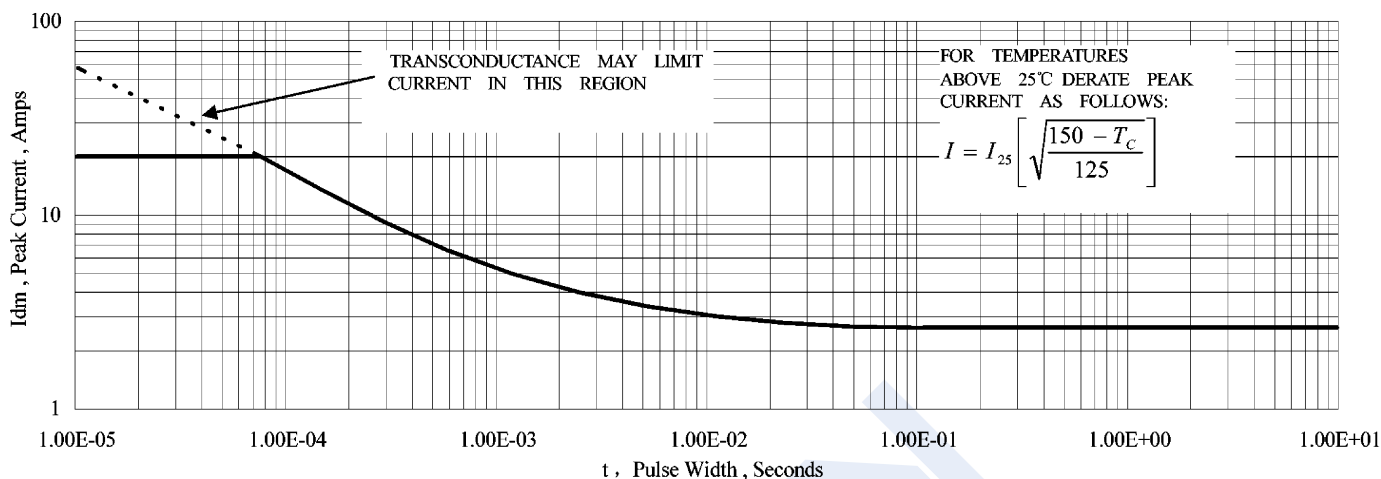


Figure 5 Maximum Effective Thermal Impedance, Junction to Case

N-Channel MOSFET

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■ Typical Characteristics



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■ Typical Characteristics

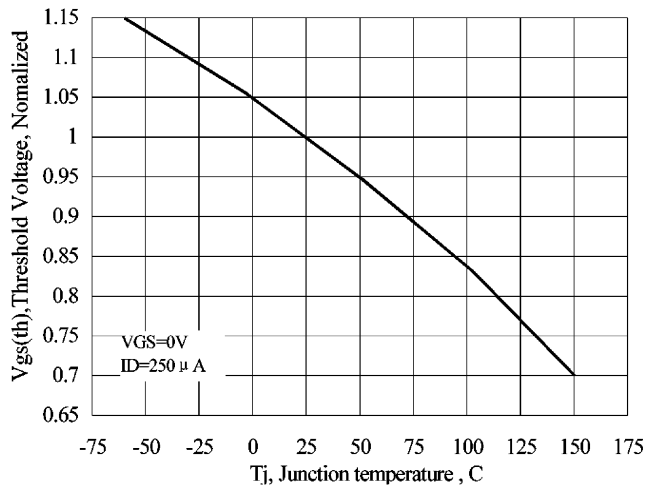


Figure 11 Typical Threshold Voltage vs Junction Temperature

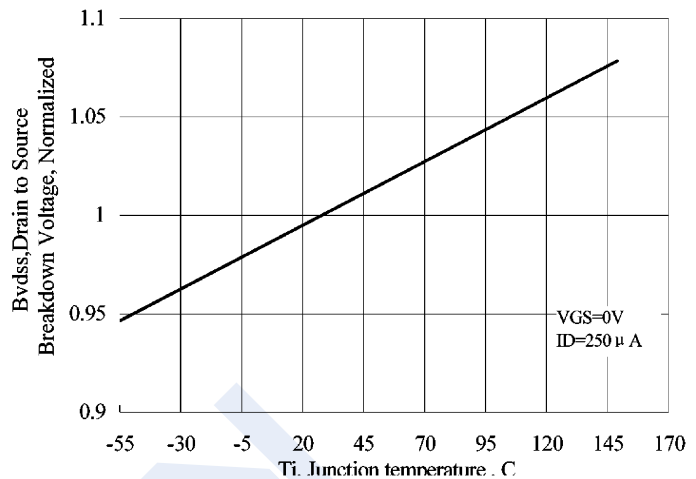


Figure 12 Typical Breakdown Voltage vs Junction Temperature

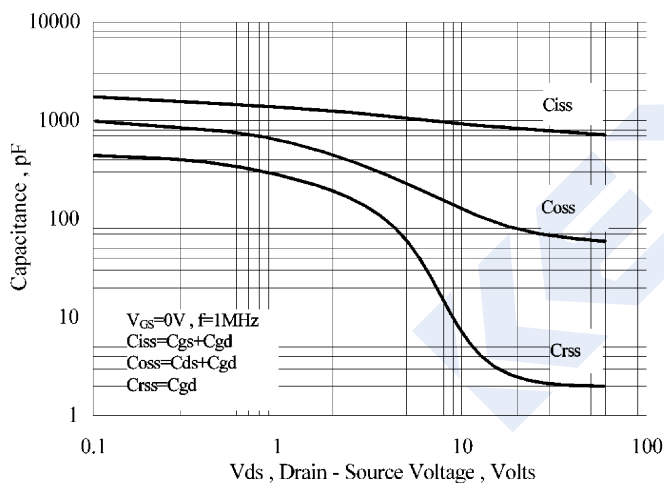


Figure 13 Typical Capacitance vs Drain to Source Voltage

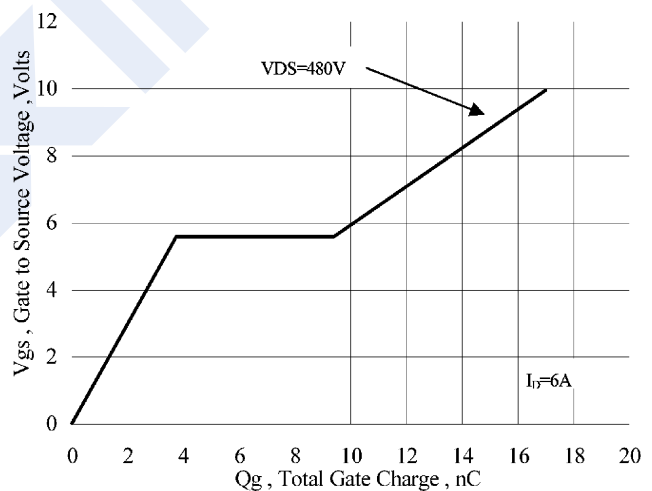


Figure 14 Typical Gate Charge vs Gate to Source Voltage

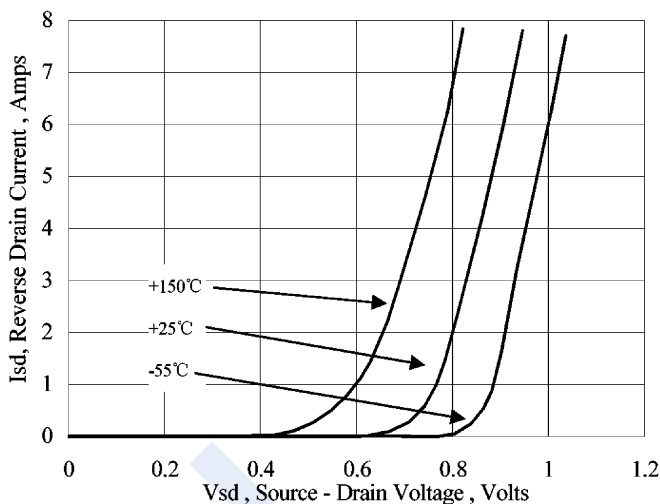


Figure 15 Typical Body Diode Transfer Characteristics

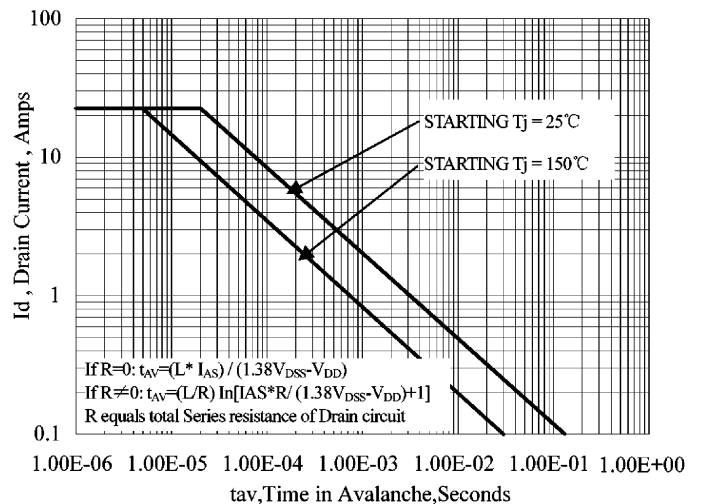


Figure 16 Unclamped Inductive Switching Capability