

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	MAXIMUM RATINGS	UNIT
Supply Voltage	V ⁺	+45	V
Drain – Source pin Voltage	V _{DSS}	-50	V
IN- pin Voltage	V _{IN-}	-0.3 to +6	V
Power Dissipation	P _D	2.1 (Device itself)	W
Junction Temperature Range	T _j	-40 to +150	°C
Operating Temperature Range	T _{opr}	-40 to +85	°C
Storage Temperature Range	T _{stg}	-40 to +150	°C

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V ⁺	6	12	40	V
IN- pin Voltage	V _{IN-}	0	-	5.5	V

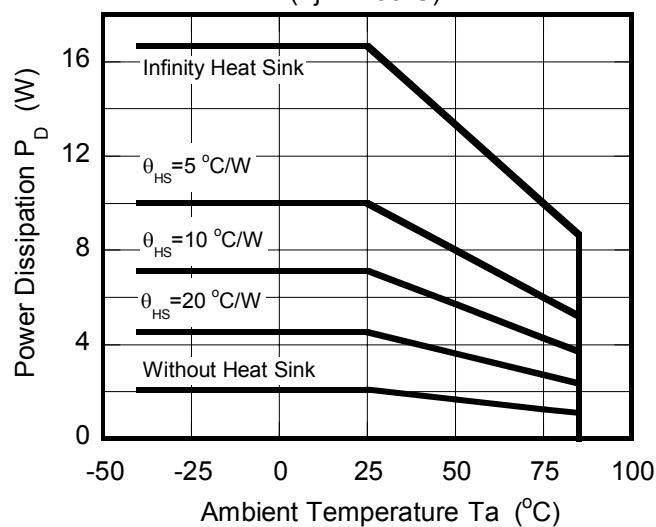
■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	THERMAL RESISTANCE	UNIT
Junction-to-Ambient Temperature	θ _{ja}	59.5	°C/W
Junction-to-Case	ψ _{jt}	7.5	°C/W

■ POWER DISSIPATION vs. AMBIENT TEMPERATURE

Power Dissipation vs. Ambient Temperature

(T_j = ~150°C)



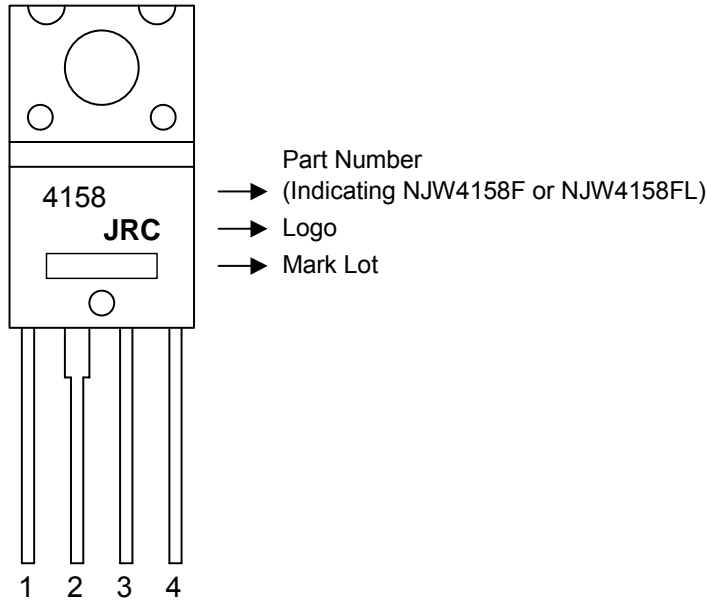
■ ELECTRICAL CHARACTERISTICS

(Unless otherwise noted, $V^+=12V$, $T_a=25^\circ C$)

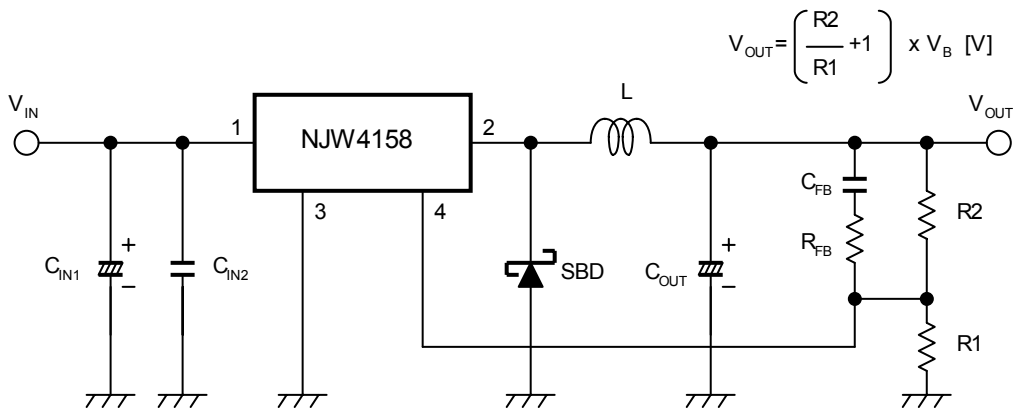
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Under Voltage Lockout Block						
ON Threshold Voltage	V_{T_ON}	$V^+=L \rightarrow H$	5.2	5.4	5.6	V
OFF Threshold Voltage	V_{T_OFF}	$V^+=H \rightarrow L$	4.4	4.6	4.8	V
Hysteresis Voltage	V_{HYS}		400	800	–	mV
Soft Start Block						
Soft Start Time	T_{SS}	$V_B=0.75V$	5	10	20	ms
Oscillator Block						
Oscillation Frequency	f_{OSC}	$V_{IN}=0.7V$	135	150	165	kHz
Oscillation Frequency (Low Frequency Control)	f_{OSC_LOW}	$V_{IN}=0.4V$	–	50	–	kHz
Oscillation Frequency deviation (Supply voltage)	f_{DV}	$V^+=6V$ to $40V$	–	1	–	%
Oscillation Frequency deviation (Temperature)	f_{DT}	$T_a=-40^\circ C$ to $+85^\circ C$	–	5	–	%
Error Amplifier Block						
Reference Voltage	V_B		-1.0%	0.8	+1.0%	V
Input Bias Current	I_B		-0.1	–	+0.1	μA
PWM Compare Block						
Maximum Duty Cycle	M_{AXDUTY}	$V_{IN}=0.7V$	85	90	–	%
Minimum ON Time	$T_{ON\ min}$		–	660	850	ns
Over Current Protection						
Cool Down Time	t_{COOL}		–	24	–	ms
Output Block						
Output ON Resistance	R_{ON}	$I_{SW}=8A$	–	55	80	$m\Omega$
Switching Current Limit	I_{LIM}		10.5	12.5	15	A
Switching Current Limit 2	I_{LIM2}	$V^+=30V$	10.5	12.5	15	A
Switching Leak Current	I_{LEAK}	$V^+=45V, V_{SW}=0V$	–	–	20	μA
General Characteristics						
Quiescent Current	I_{DD}	$R_L=no\ load, V_{IN}=0.7V$	–	7	9.5	mA

NJW4158

MARK SPECIFICATION



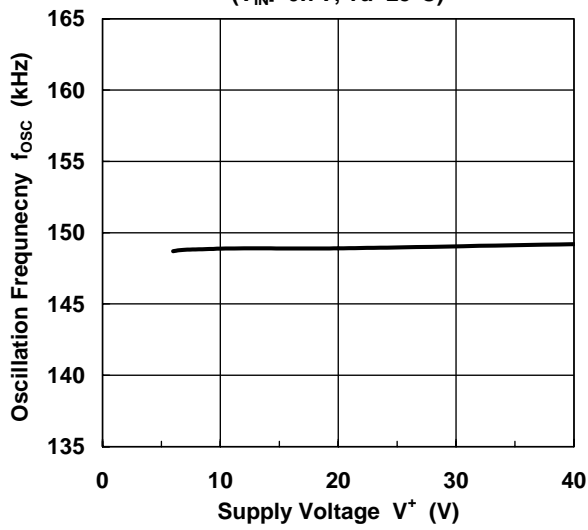
TYPICAL APPLICATIONS



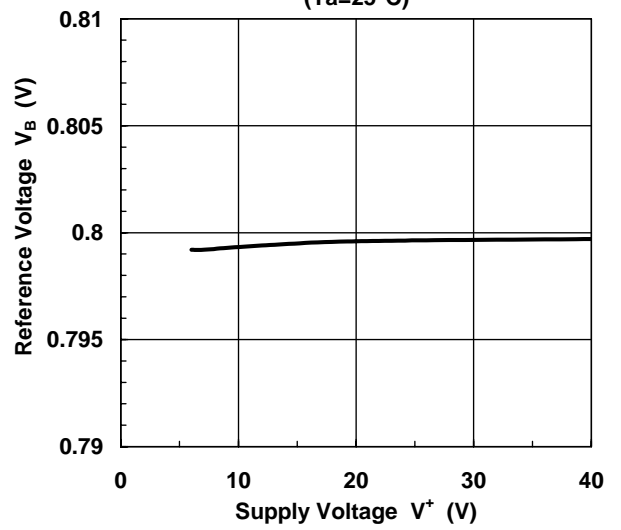
*When large current flows, V_{IN} line may be unstable. Therefore, you should put C_{IN} on near IC as much as possible.

■ TYPICAL CHARACTERISTICS

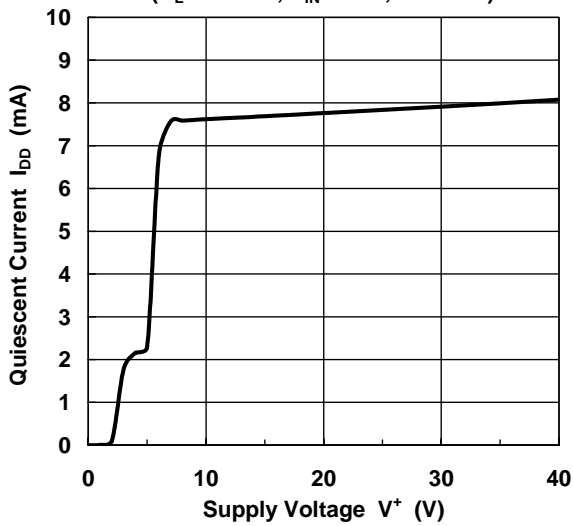
Oscillation Frequency vs. Supply Voltage
($V_{IN}=0.7V$, $T_a=25^\circ C$)



Reference Voltage vs. Supply Voltage
($T_a=25^\circ C$)

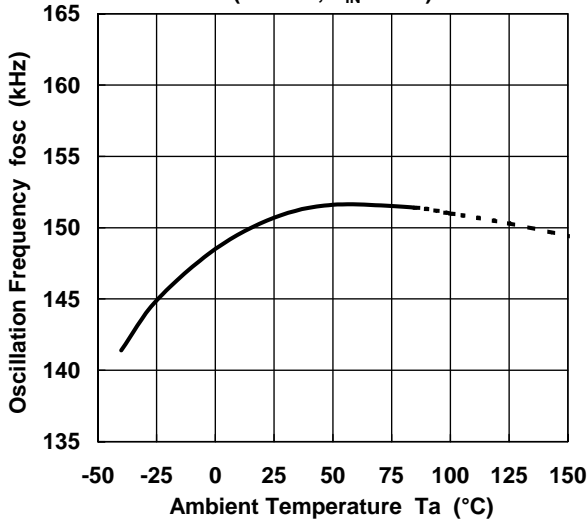


Quiescent Current vs. Supply Voltage
($R_L=no\ load$, $V_{IN}=0.7V$, $T_a=25^\circ C$)

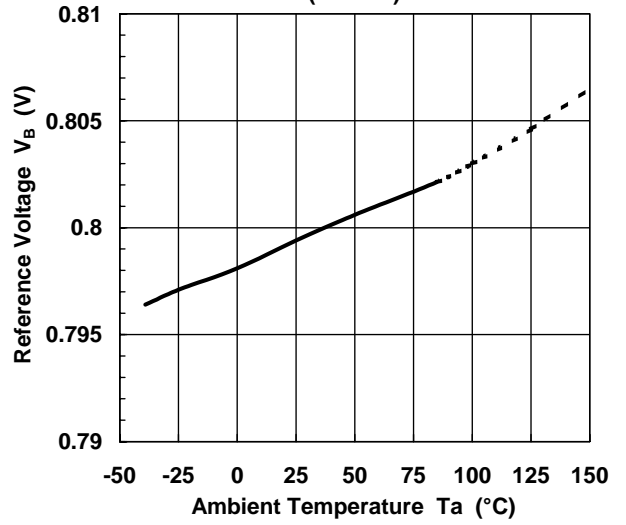


■ TYPICAL CHARACTERISTICS

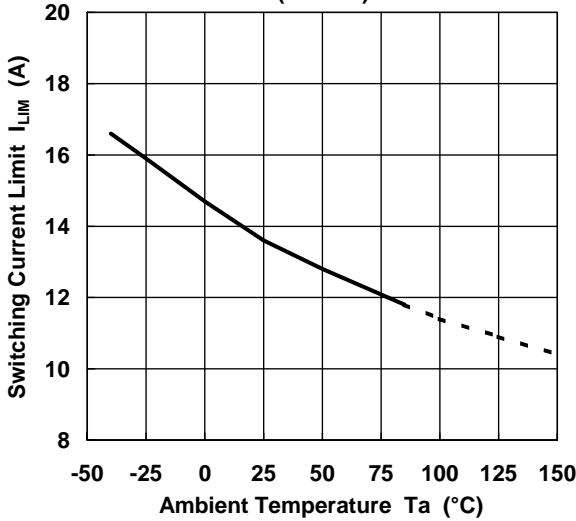
Oscillation Frequency vs. Temperature
($V^+=12V$, $V_{IN}=0.7V$)



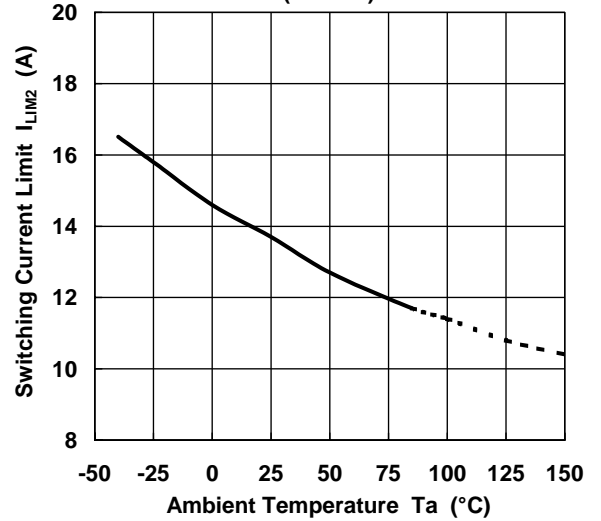
Reference Voltage vs. Temperature
($V^+=12V$)



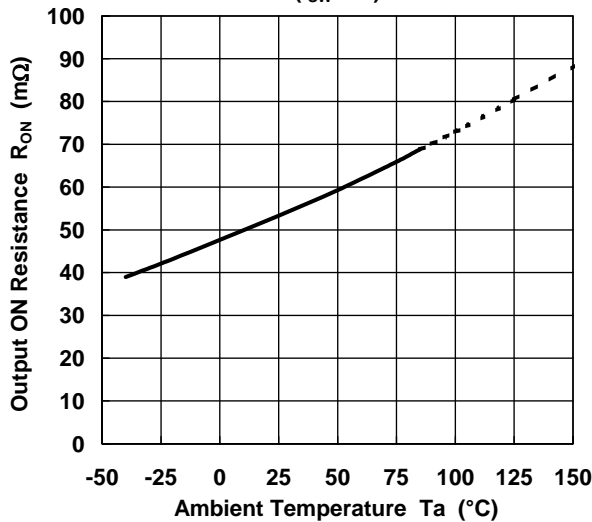
Switching Current Limit vs. Temperature
($V^+=12V$)



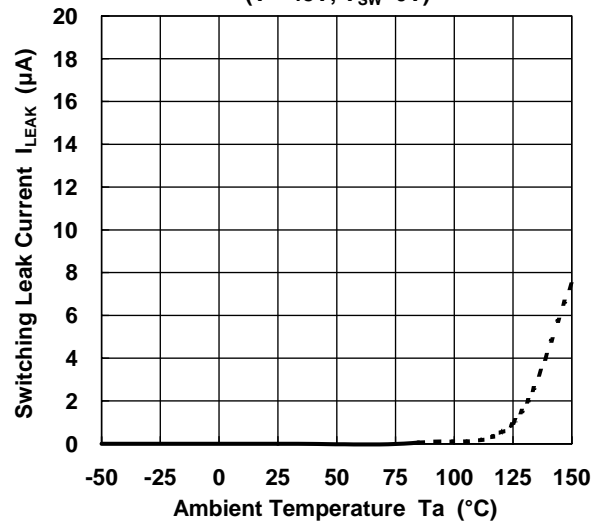
Switching Current Limit 2 vs. Temperature
($V^+=30V$)



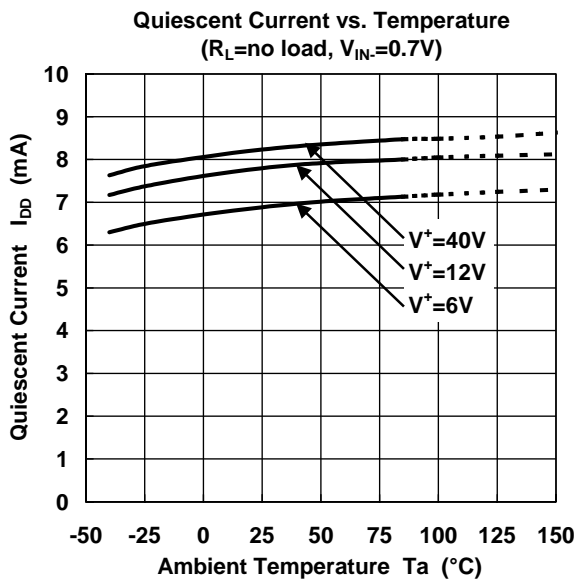
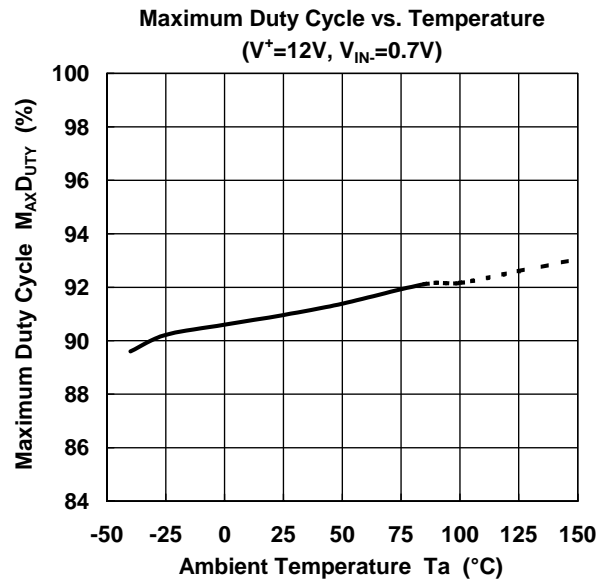
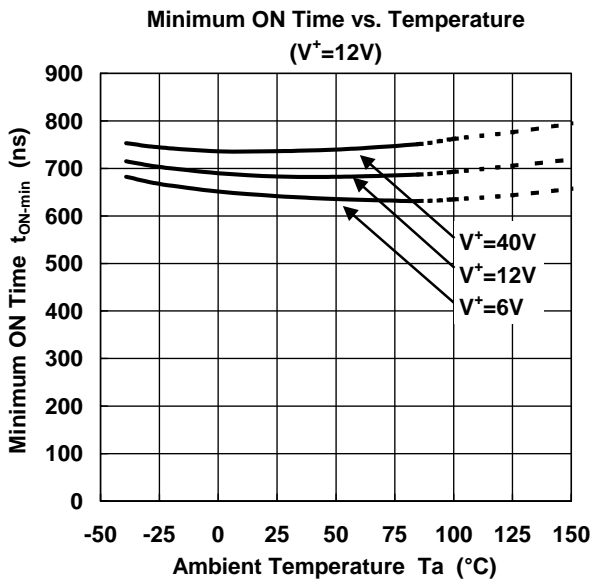
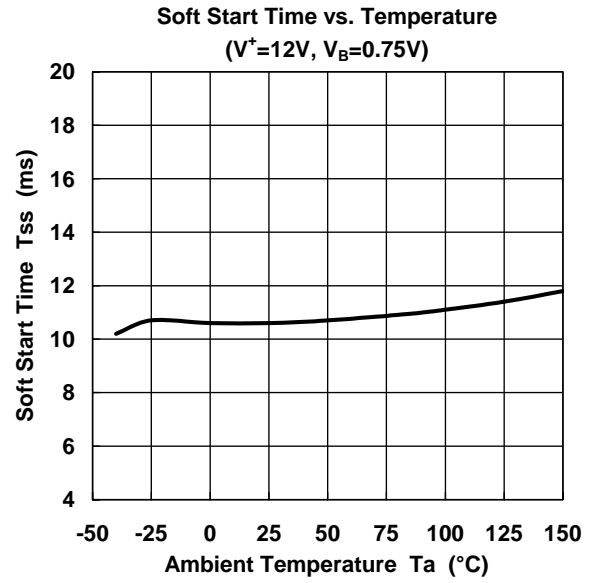
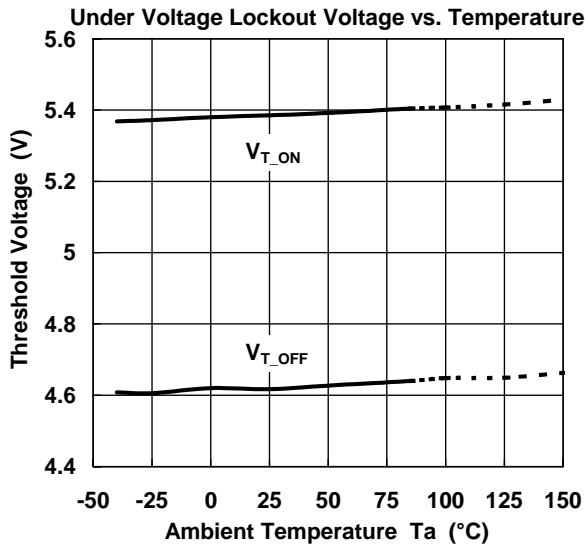
Output ON Resistance vs. Temperature
($I_{SW}=8A$)



Switching Leak Current vs. Temperature
($V^+=45V$, $V_{SW}=0V$)



■ TYPICAL CHARACTERISTICS



MEMO

[CAUTION]

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