

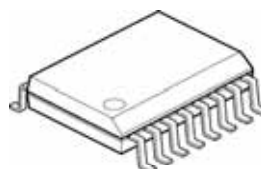
H BRIDGE DRIVER

■ GENERAL DESCRIPTION

The NJM2675 is a general-purpose 60V single H-bridge drive IC. It consists of a H-bridge, a thermal shut down circuit and its alarm output. The alarm output can detect application problems and the system reliability will be significantly improved if monitored by Microprocessor.

Therefore, it is suitable for DC motor application driven by Microprocessor.

■ PACKAGE OUTLINE

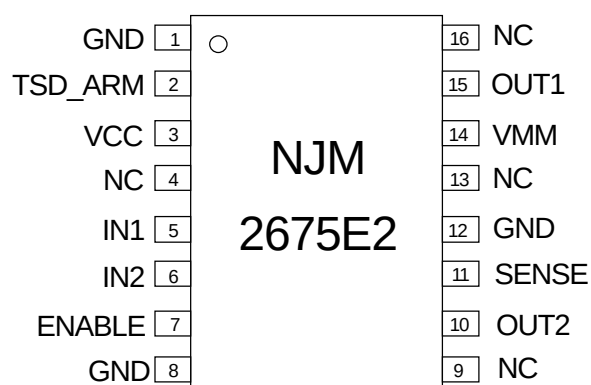


NJM2675E2
(SOP16-E2)

■ FEATURE

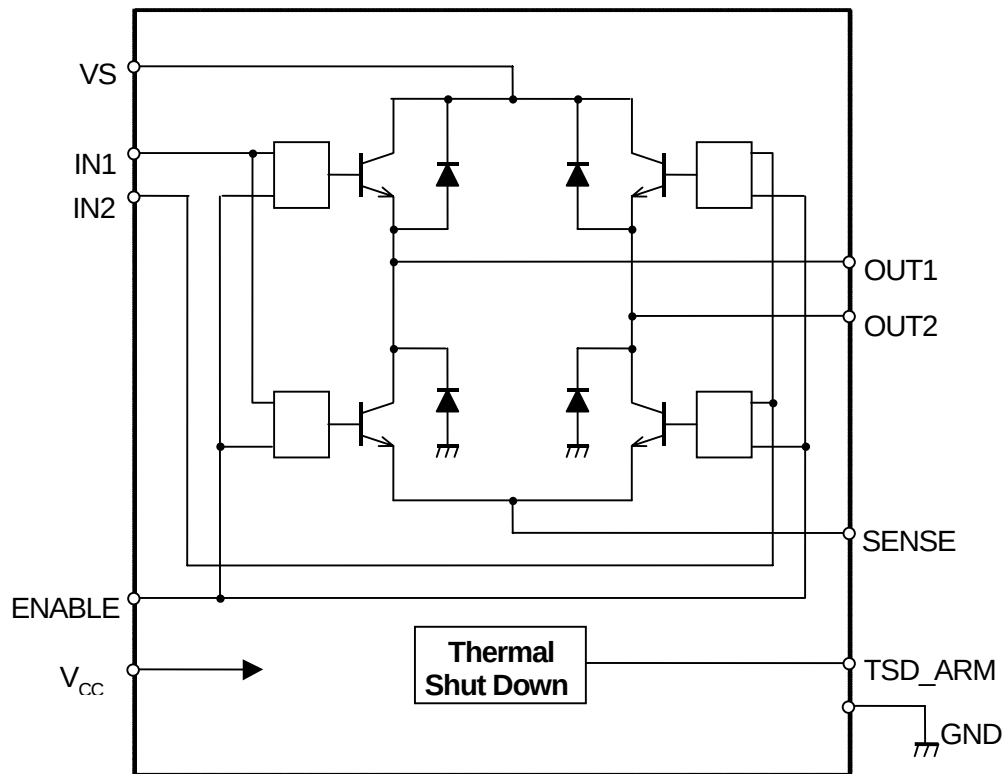
- Wide Voltage Range 4V to 55V
- Wide Range of Current Control 5 to 1200mA
- Thermal Shut Down Circuit (with Alarm Output)
- Dead Band Protector
- Package Outline SOP16-E2 JEDEC 300mil

■ PIN CONNECTION



NJM2675

■ BLOCK DIAGRAM



■ PIN DESCRIPTION

Pin No.	Symbol	Description
1	GND	Ground (This terminal has to be connected to pin8 and pin12)
2	TSD_ARM	Thermal shut down alarm output
3	VCC	Logic supply voltage
4	NC	No connect
5	IN1	Logic control signal input
6	IN2	Logic control signal input
7	ENABLE	Output ON/OFF control
8	GND	Ground (This terminal has to be connected to pin1 and pin12.)
9	NC	No connect
10	OUT2	Motor output 2
11	SENSE	Current cense
12	GND	Ground (This terminal has to be connected to pin8 and pin12.)
13	NC	No connect
14	VMM	Motor supply voltage
15	OUT1	Motor output
16	NC	No connect

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Maximum Supply Voltage	V_{MM}	60	V
Logic Supply Voltage	V_{CC}	7	V
Input Voltage Range	V_{IN}	-0.3 to 7	V
Output Current	I_{OUT}	1.5	A
Power dissipation (SOP package)	P_D	1.3 (Note1)	W
Operating Junction Temperature	T_{opr}	-40 ~ 85	°C
Storage Temperature	T_{stg}	-55 ~ 150	°C

Note1 Specified board : EIA / JEDEC specification (76. 2×114.3×h1.6mm, 2-layer, FR4)

■ RECOMENENDO OPERATING CONDITIONS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{MM}		4	-	55	V
Logic Voltage Range	V_{CC}		4.75	5.00	5.25	V
Maximum Output Current	I_{OUT}		-	-	1.2	A
Operating junction temperature	T_J		-20	-	125	°C

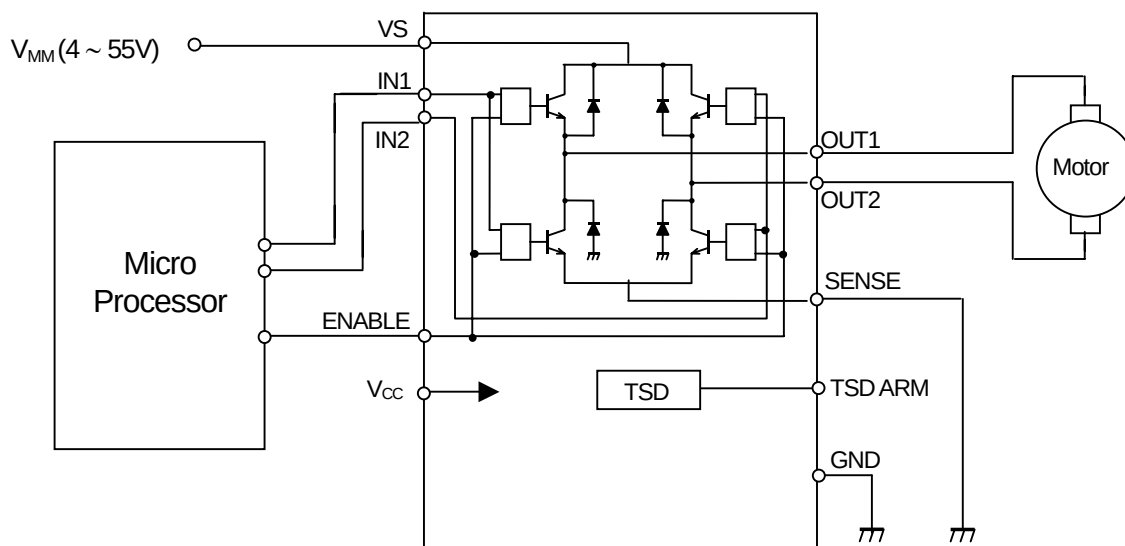
■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
GENERAL						
Quiescent current	I_{CC}	Enable=H, IN1=L, IN2=H	-	20	-	mA
Thermal shutdown	T_{tsd}		-	170	-	°C
Off-State leak current	I_{tsd_LEAK}	TSD ARM=5V	-	-	50	μA
Thermal alarm output saturation	V_{tsd}	$I_o=5mA$	-	0.5	0.7	V
Dead time protection	T_d		-	1	-	μs
LOGIC						
Input LOW voltage	V_{iL}		-	-	0.6	V
Input HIGH voltage	V_{iH}		2	-	-	V
Input HIGH current	I_{iH}	$V_i=2.4V$	-	-	20	μA
Input LOW current	I_{iL}	$V_i=0.4V$	-0.4	-	-	mA
OUTPUT						
Upper transistor saturation	V_{OU1}	$I_o=1000mA$	-	1.3	1.5	V
	V_{OU2}	$I_o=1300mA$	-	1.5	1.8	V
Lower transistor saturation	V_{OL1}	$I_o=1000mA$	-	0.5	0.8	V
	V_{OL2}	$I_o=1300mA$	-	0.8	1.3	V
Upper diode forward	V_{fU1}	$I_o=1000mA$	-	1.3	1.6	V
	V_{fU2}	$I_o=1300mA$	-	1.6	1.9	V
Lower diode forward	V_{fL1}	$I_o=1000mA$	-	1.3	1.6	V
	V_{fL2}	$I_o=1300mA$	-	1.6	1.9	V
Output leakage current	I_{O_LEAK}	$V_{MM}=50V$	-	-	1	mA
Upper diode recovery time	T_{rrU}		-	250	-	ns
Lower diode recovery time	T_{rrL}		-	250	-	ns

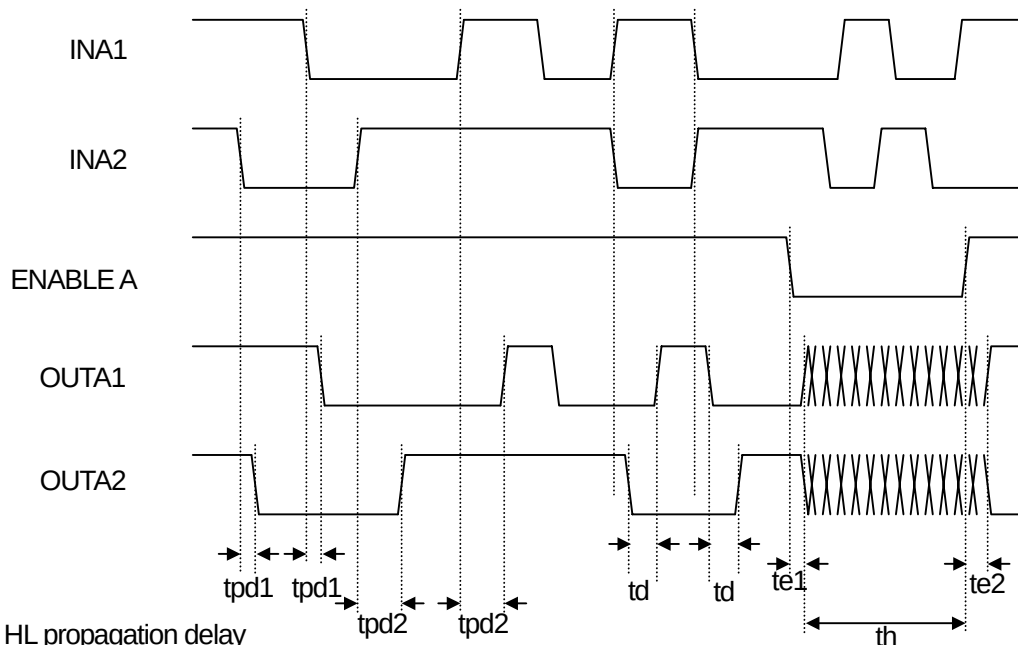
■ TRUTH TABLE

INPUT (L=Low,H=High,X=Don't care)			OUTPUT (H=Source,L=Sink)		OUTPUT mode
ENABLE A=H ENABLE B=H	INA1 INB1	INA2 INB2	OUTA1 OUTB1	OUTA2 OUTB2	
	L	L	L	L	short brake mode
	L	H	L	H	CW
	H	L	H	L	CCW
	H	H	H	H	short brake mode
ENABLE A=L ENABLE B=L	X	X	All Transistor turned OFF		

■ TYPICAL APPLICATION

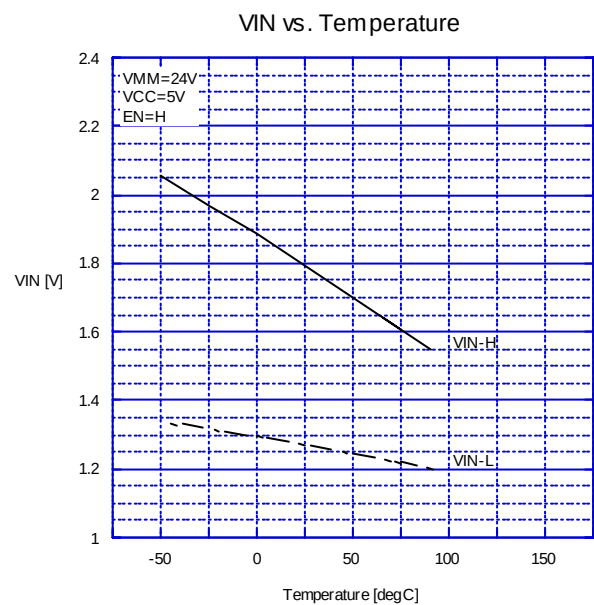
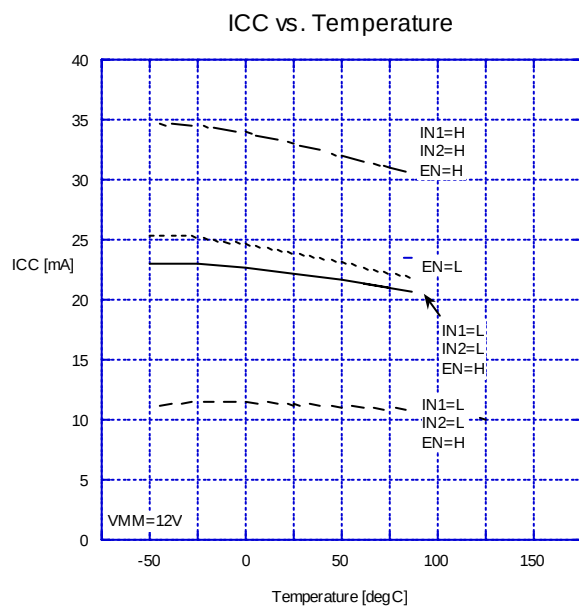
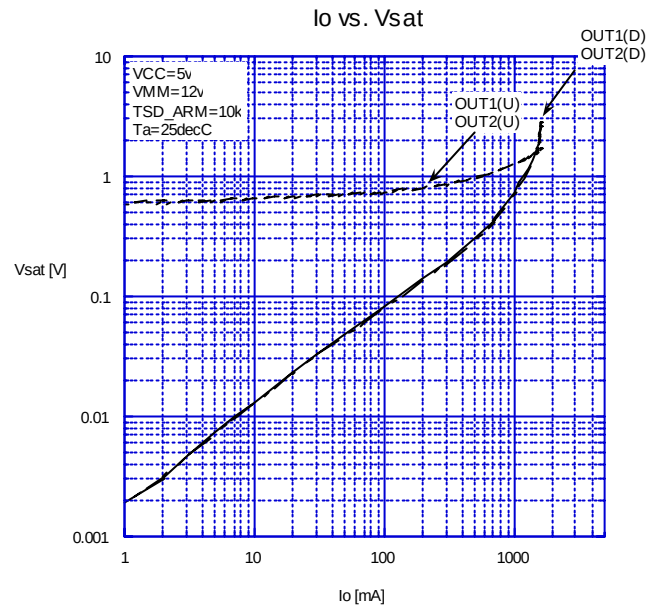
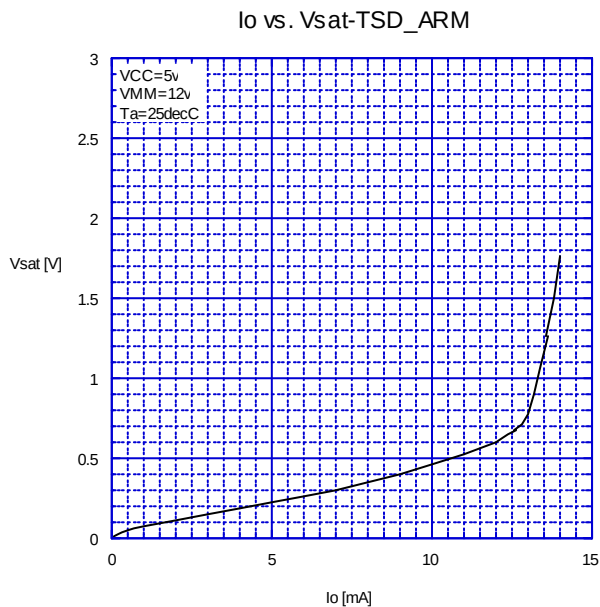
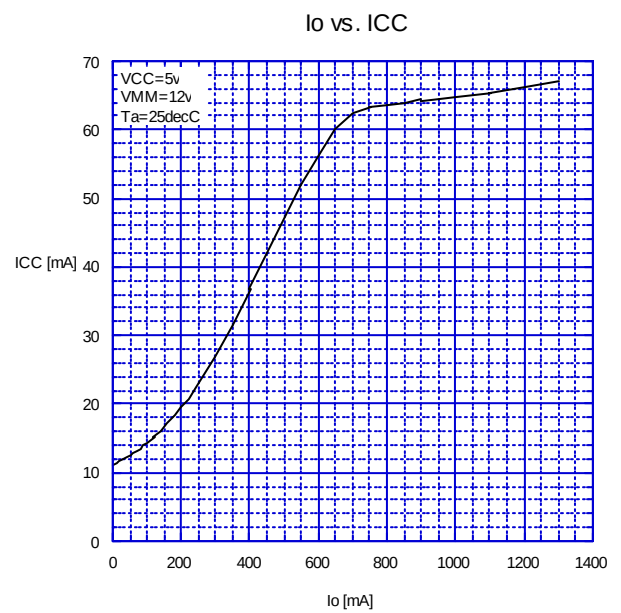
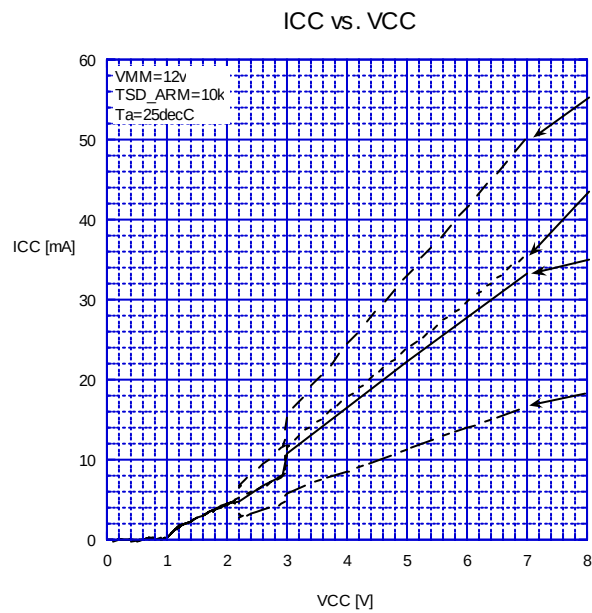


■ TIMING CHART



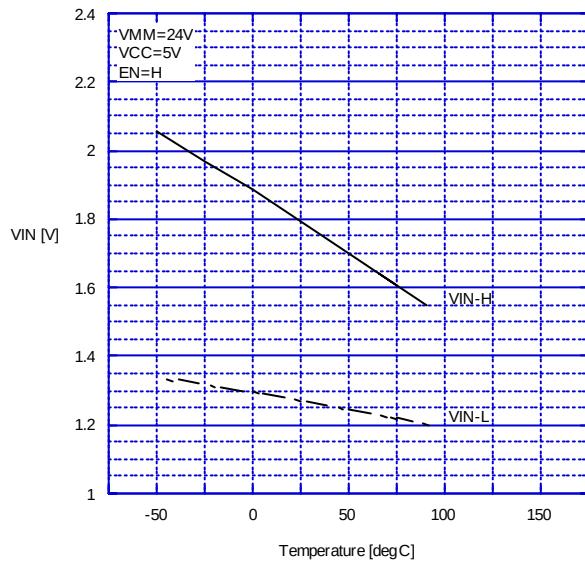
	Reference value	unit
tpd1	1.0	us
tpd2	2.5	us
td	1.5	us
te1	3.5	us
te2	2.0	us

■ TYPICAL CHARACTERISTICS 1

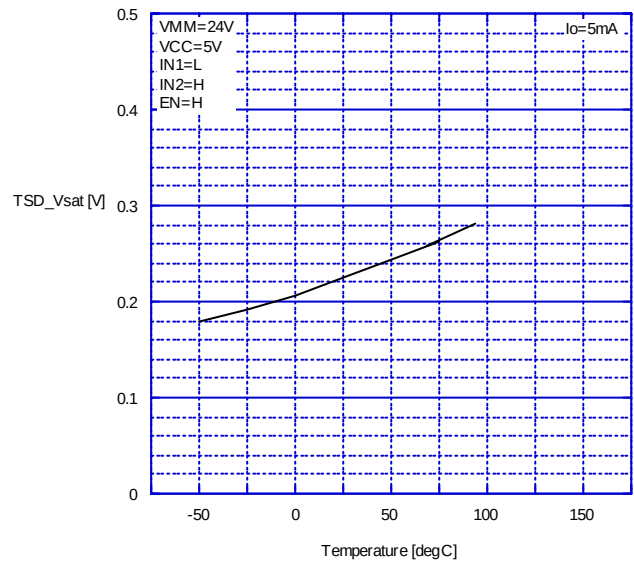


■ TYPICAL CHARACTERISTICS 2

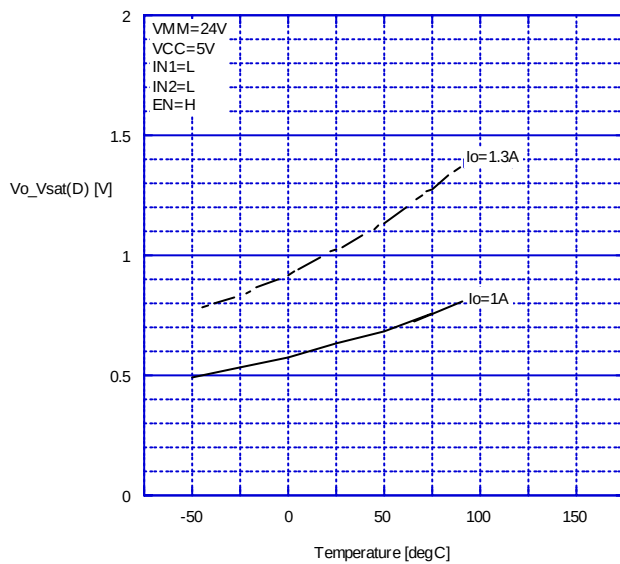
VIN vs. Temperature



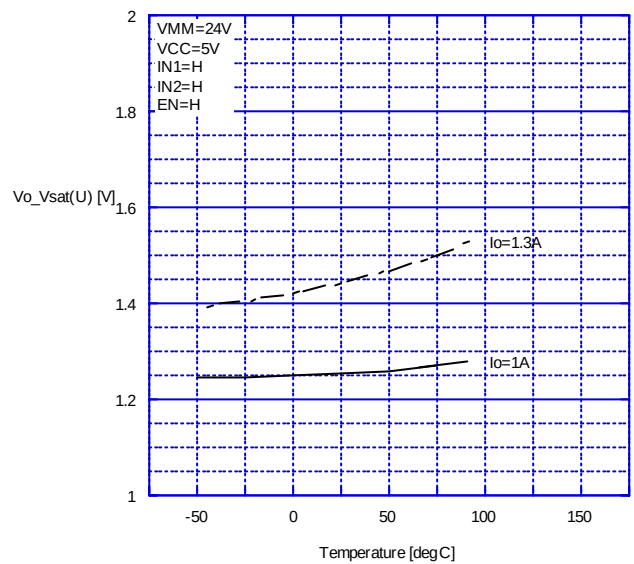
TSD_Vsat vs. Temperature



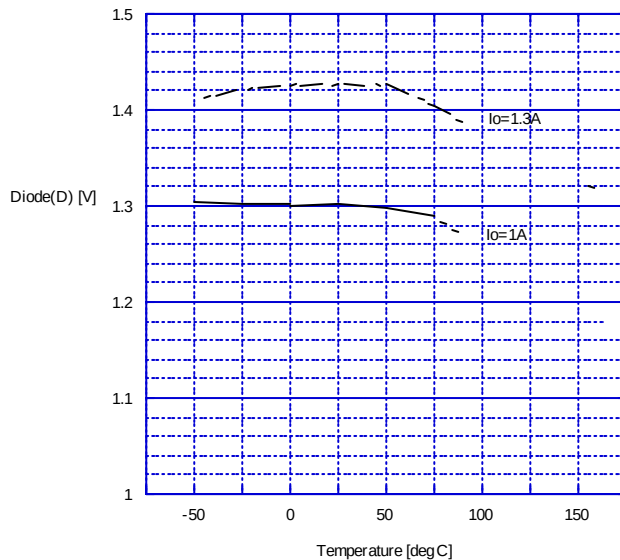
Vo_Vsat(D) vs. Temperature



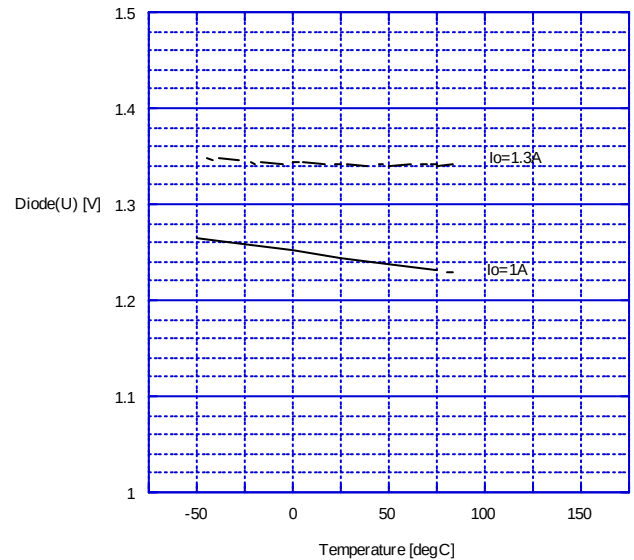
Vo_Vsat(U) vs. Temperature



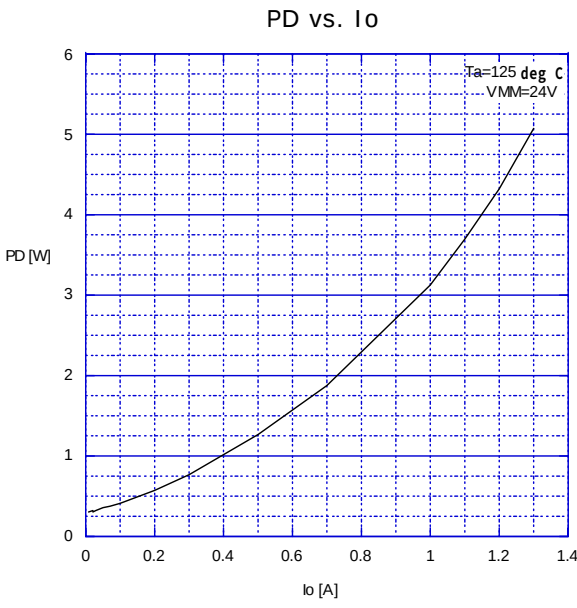
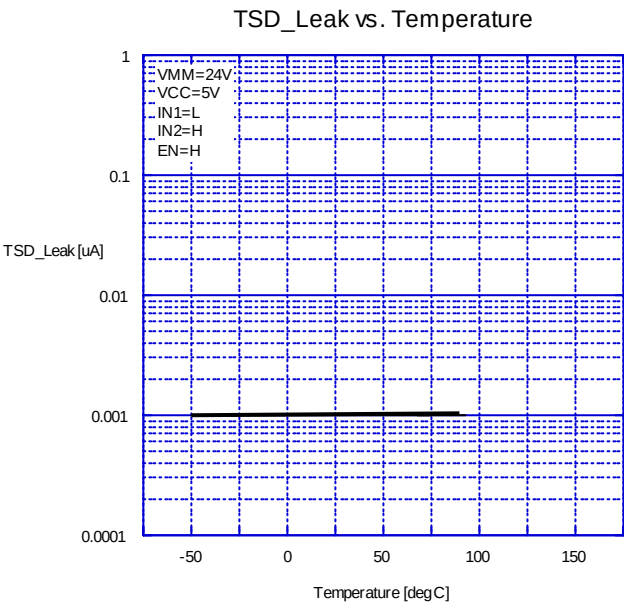
Diode(D) vs. Temperature



Diode(U) vs. Temperature



■ TYPICAL CHARACTERISTICS 3



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