TECH PUBLIC
台舟电子

TPM1869C6

Load Switch with Level-Shift

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Product Summary

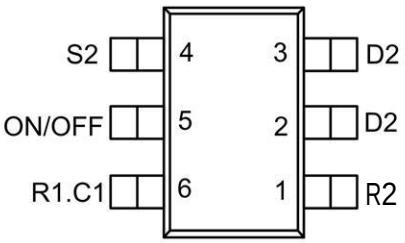
- VD2S2 (V) -20
- RDS(on) 120mΩ at VGS = 4.5 V (Typ)
- RDS(on) 160mΩ at VGS = 2.5 V (Typ)
- RDS(on) 220mΩ at VGS = 2.5 V (Typ)
- ID (A) ± 1.3
- Configuration Level-Shif

Application

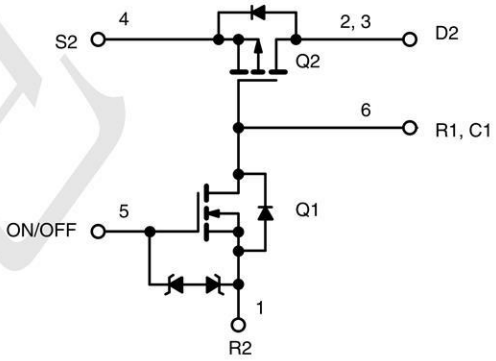
- Battery Packs
- Battery-Powered Portable Equipment
- Cellular and Cordless Telephones

Package and Pin Configuration

SOT363



Circuit diagram



Marking:

VCQ= is Part Number ,Fixed
TP= TECH PUBLIC,Fixed

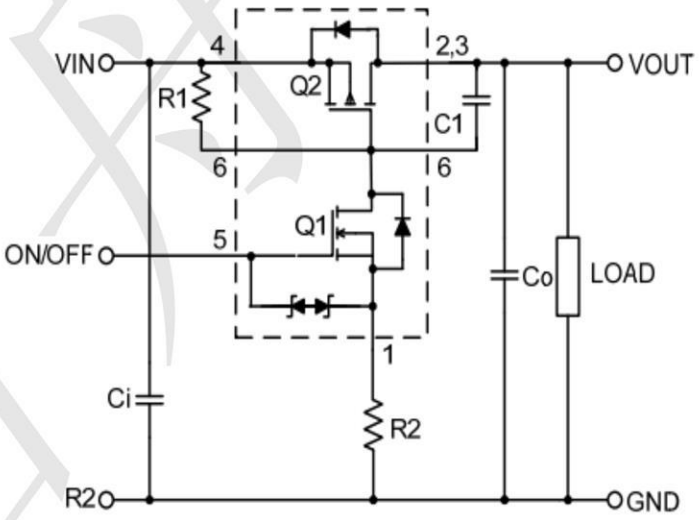
Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	Ratings	UNITS
Drain-source voltage (D2-S2)	V_{DS}	-20	V
Input Voltage Range	V_{IN}	20	V
On/Off Voltage Range	V_{ON}/V_{OFF}	8	V
Continuous Load Current	IL	1.3	A
Pulsed Load Current	ILM	3.9	A
Continuous intrinsic diode conduction	Is	0.4	A
Maximum power dissipation	P_D	1.0	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55~150	°C
ESD, MIL-STD-883D HBM (100pF/1.5kohm) (Von/off pin)	V_{ESD}	2	kV
Typical Junction to Ambient(Note 2)	$R_{\theta JA}$	250	°C/W

Electrical Characteristics (T_A = 25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Off Characteristics						
Leakage Current	I_{FL}	V_{IN}=8 V, V_{ON}/V_{OFF}=0V	-	-	1	uA
Diode Forward Voltage	V_{SD}	I_S=-0.4A	0.4	0.6	1.1	V
On Characteristics						
Input voltage range	Vin			-	20	V
Drain to source breakdown voltage (Q2)	Vds	VGS = 0 V, ID = -250 uA	-20	-		V
Drain-Source On-State Resistance (Q2)	$R_{DS(on)}$	VON/OFF = 1.5 V, VIN = 4.5 V, ID = 1.2A		120	150	mΩ
		VON/OFF = 1.5 V, VIN = 2.5 V, ID = 1 A		160	210	
		VON/OFF = 1.5 V, VIN = 1.8 V, ID = 0.7A		220	270	
Load Current	IL	Vdrop=0.2V,Vin=5V,Von/oFF=1.5V	1.0	-		A
		Vdrop=0.2V,Vin=5V,Von/oFF=1.5V	1.0	-		

Typical Application Circuit



COMPONENTS		
R1	Pull-Up Resistor	Typical 10kΩ to 1MΩ*
R2	Optional Slew-Rate Control	Typical 0 to 100kΩ
C1	Optional Slew-Rate Control	Typical 1000pF

Typical Operating Characteristics

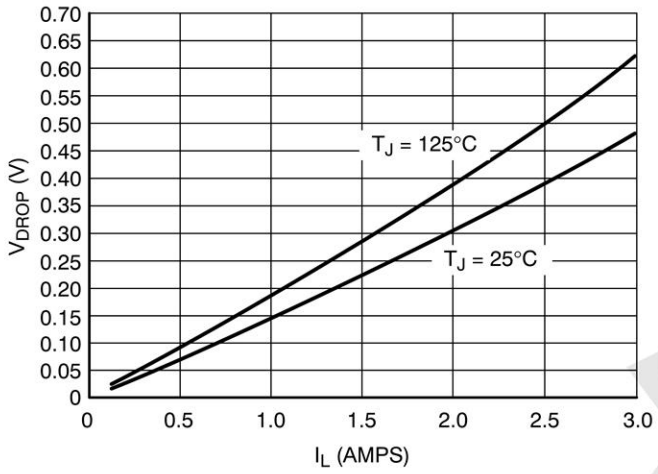


Figure 2. V_{drop} vs. I_L @ V_{in} = 2.5 V

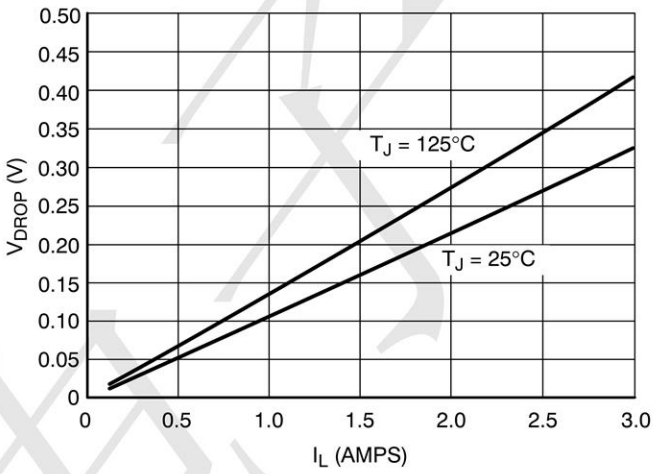


Figure 3. V_{drop} vs. I_L @ V_{in} = 4.5 V

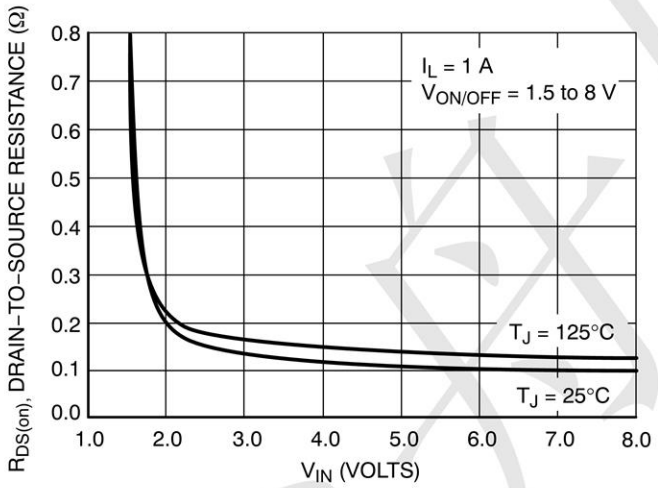


Figure 4. On−Resistance vs. Input Voltage

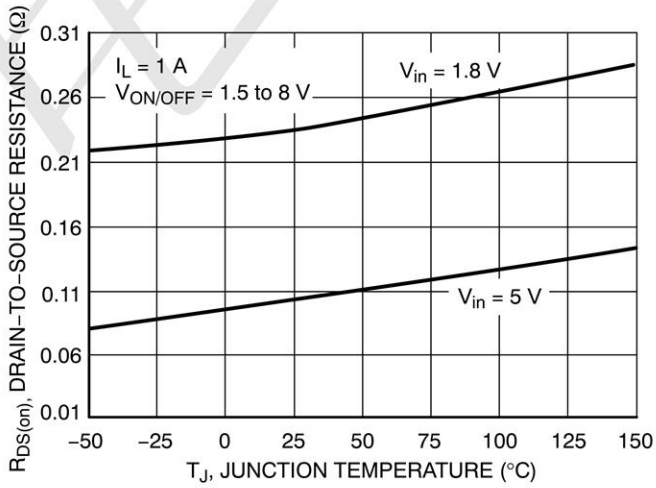


Figure 5. On−Resistance Variation with Temperature

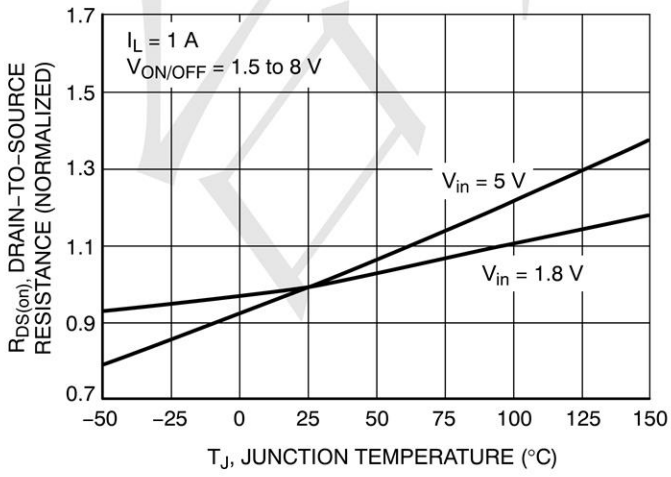


Figure 6. Normalized On−Resistance Variation with Temperature

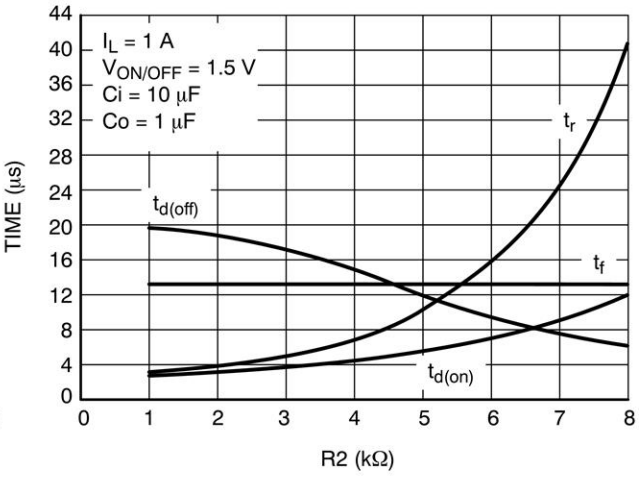


Figure 7. Switching Variation R2 @ V_{in} = 4.5 V, R1 = 20 kΩ

TYPICAL PERFORMANCE CURVES (T_J = 25°C unless otherwise noted)

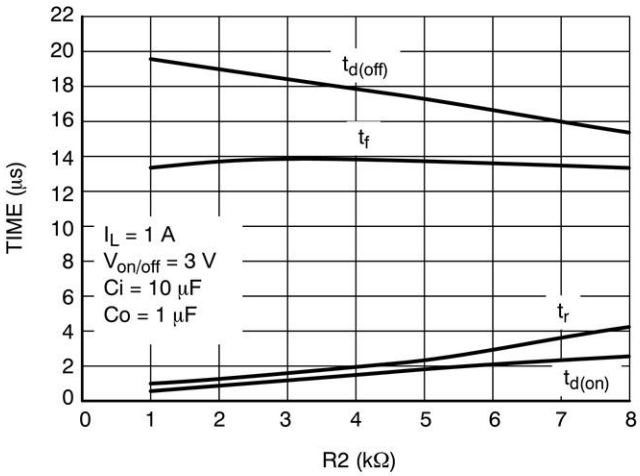


Figure 8. Switching Variation
R2 @ V_{in} = 4.5 V, R1 = 20 kΩ

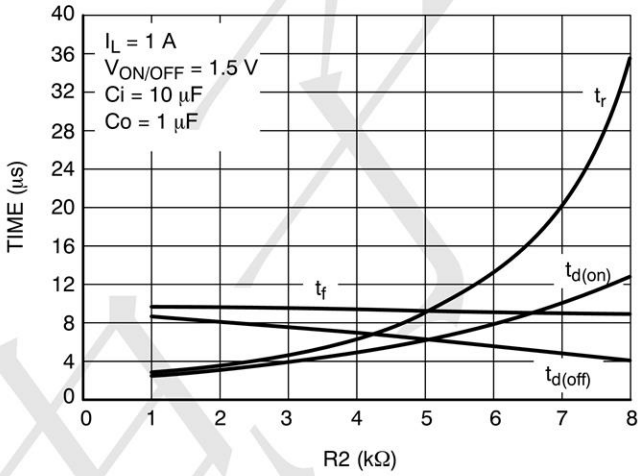


Figure 9. Switching Variation
R2 @ V_{in} = 2.5 V, R1 = 20 kΩ

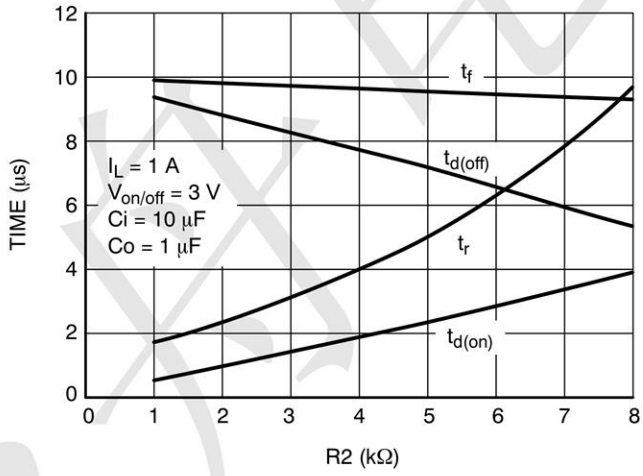


Figure 10. Switching Variation
R2 @ V_{in} = 2.5 V, R1 = 20 kΩ

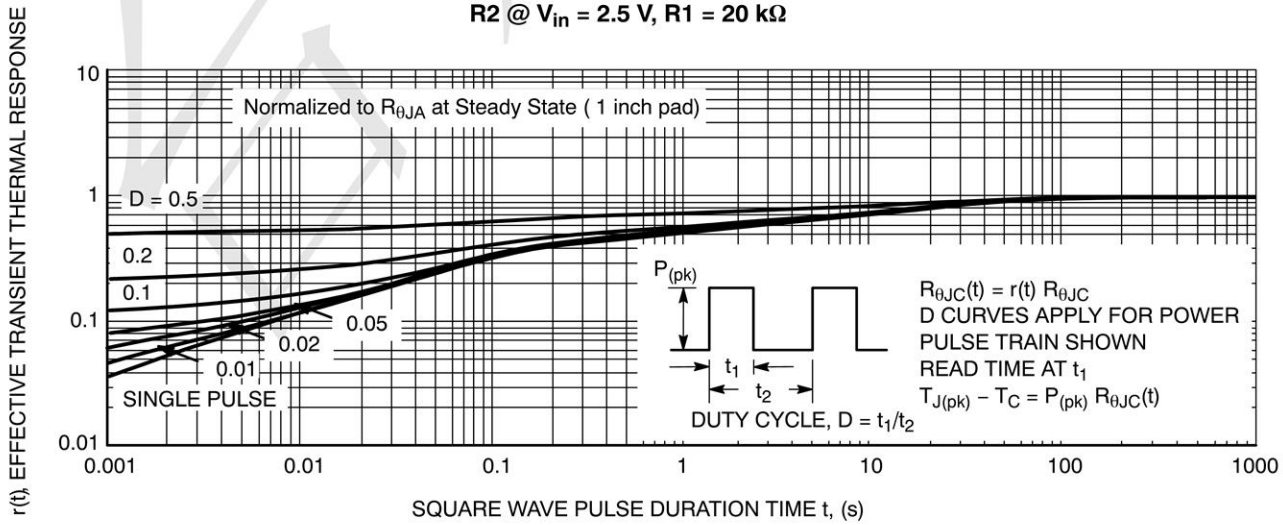
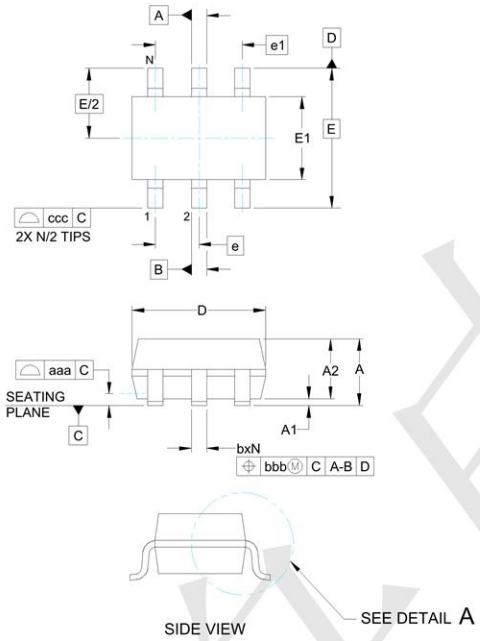


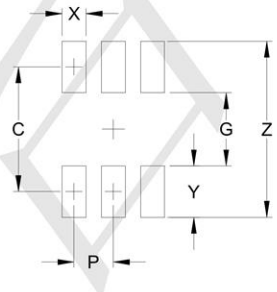
Figure 11. FET Thermal Response

Outline Drawing - SOT-363



DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	-	-	.043	-	-	1.10
A1	.000	-	.004	0.00	-	0.10
A2	.028	.035	.039	0.70	0.90	1.00
b	.006	-	.012	0.15	-	0.30
c	.003	-	.009	0.08	-	0.22
D	.071	.079	.087	1.80	2.00	2.20
E1	.045	.049	.053	1.15	1.25	1.35
E	.083 BSC			2.10 BSC		
e	.026 BSC			0.65 BSC		
e1	.051			1.30 BSC		
L	.010	.014	.018	0.26	0.36	0.46
L1	(.017)			(0.42)		
N	6			6		
01	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.004			0.10		
ccc	.012			0.30		

Land Pattern - SOT-363



DIM	DIMENSIONS	
	INCHES	MILLIMETERS
C	(.073)	(1.85)
G	.039	1.00
P	.026	0.65
X	.016	0.40
Y	.033	0.85
Z	.106	2.70