

AS58F SERIES

SiC MOSFET 1800V.1a



APPLICATIONS

BMS

Battery
Management
System

ESS

Energy
Storage
System

ATE

Automatic
Test
Equipment

KEY FEATURES

- High Voltage with Low On-Resistance
 - Fast Reverse Recovery
 - High Avalanche Ruggedness
 - Steady Leakage Current at High Temp.
- Creepage and clearance $\geq 8\text{mm}$ (input-output)
Creepage $\geq 8\text{mm}$ (between drain pins of MOSFETs)

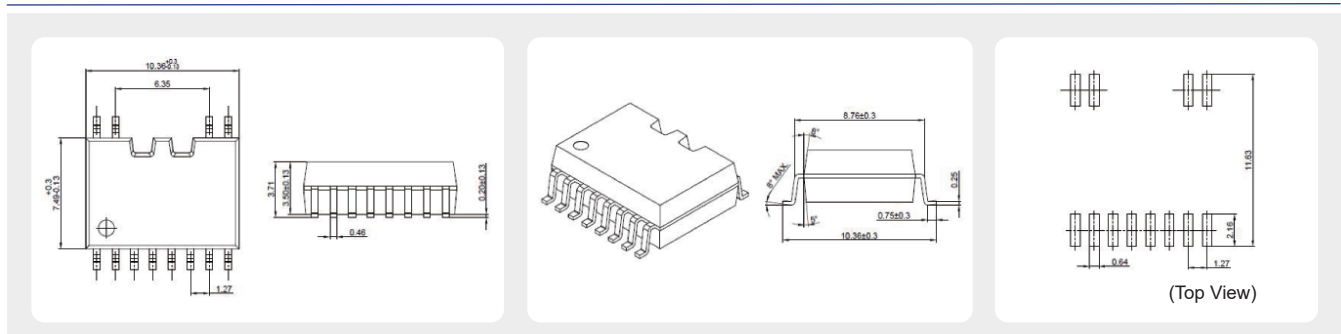
SPECIFICATIONS

ITEM		PERFORMANCE CHARACTERISTICS
Contact Form		1a
Load Voltage	V_L	1800V
Operation LED Current	$I_{F\text{ ON}}$	5.0mA
Load Current	I_L	30mA
On-Resistance	R_{ON}	100 Ω
Output Capacitance	C_{OUT}	10pF
Low Off-State Leakage Current	I_{LEAK}	1 μA at 1500VDC / 10 μA at 1800VDC

PIN DESCRIPTION & PART NUMBER

CIRCUIT DIAGRAM	PIN DESCRIPTION	PART NO.	PACKAGE	PACKING
	4: Anode (+) • LED 3,5: Cathode (-) • LED 9,10: Drain • MOSFET 15,16: Drain • MOSFET	AA58F AA58F-R1	SMD16 SMD16	43pcs Reel 1000pcs

DIMENSIONS & PC BOARD PATTERN



ABSOLUTE MAXIMUM RATINGS (Ambient Temperature 周圍溫度 : 25°C)

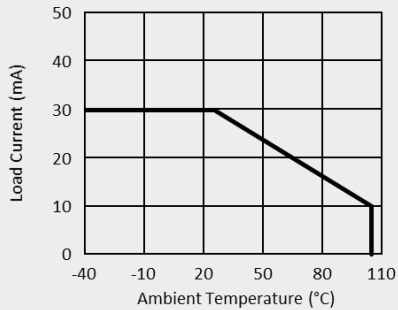
ITEM		CONDITION	SYMBOL	VALUE	UNIT
Input 輸入	Continuous LED Current 連續 LED 電流		I _F	50	mA
	Peak LED Current LED 峰值電流	100 Hz, Duty 1%	I _{FP}	500	mA
	LED Reverse Voltage 逆向 LED 電壓		V _R	5	V
	Input Power Dissipation 輸入損耗		P _{IN}	75	mW
Output 輸出	Load Voltage 負荷電壓		V _L	1800 (AC peak or DC)	V
	Load Current 負荷電流		I _L	30	mA
	Peak Load Current 峰值負荷電流	10 ms, 1 shot	I _{PEAK}	80	mA
	Output Power Dissipation 輸出損耗		P _{OUT}	450	mW
Relay 繼電器	Total Power Dissipation 全損耗		P _T	500	mW
	I/O Breakdown Voltage 輸入/出力間絕緣電壓		V _{I/O}	5000	V _{rms}
	Operating Temperature 使用時溫度		T _{OPR}	-40 ~ +105	°C
	Storage Temperature 保存溫度		T _{STG}	-40 ~ +125	°C
	Junction Temperature 接面溫度		T _J	175	°C

ELECTRICAL SPECIFICATIONS (Ambient Temperature 周圍溫度 : 25°C)

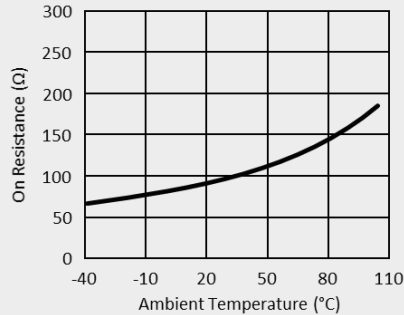
ITEM		CONDITION	SYM.	MIN.	TYP.	MAX.	UNIT
Input 輸入	LED Forward Voltage LED 順向電壓	I _F =10mA	V _F	1.0	1.33	1.5	V
	Operation LED Current LED 動作電流		I _{F ON}		2.0	5.0	mA
	Recovery LED Voltage LED 復位電壓		V _{F OFF}	0.5	1.2		V
Output 輸出	On-Resistance 導通電阻 Drain to Drain (Tested within 1 sec.)	I _F =10mA, I _L =Rating	R _{ON}		120	200	Ω
		I _F =10mA, I _L =5mA			100	180	
	Off-State Leakage Current 開路狀態漏電流	V _L =1800V	I _{LEAK}			10	μA
		V _L =1500V				1	
	Output Capacitance 輸出端容量	V _L =0V, f=1 MHz	C _{OUT}		10		pF
Transmission 傳達	Turn-On Time 動作時間	I _F =10mA, I _L =Rating	T _{ON}		0.2	3.0	ms
	Turn-Off Time 復位時間		T _{OFF}		0.06	1.0	ms
Coupled 結合	I/O Insulation Resistance 輸入/ 出間絕緣阻抗		R _{I/O}	10 ¹⁰			Ω
	I/O Capacitance 輸入/ 力端靜電容量	f=1MHz	C _{I/O}		1.3		pF

REFERENCE DATA

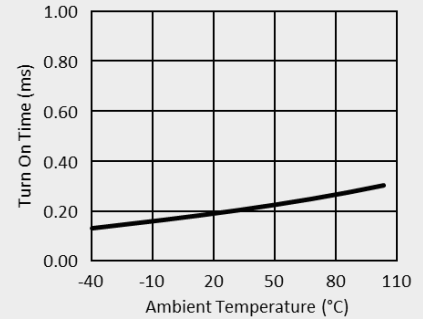
Load current vs. Ambient temp.



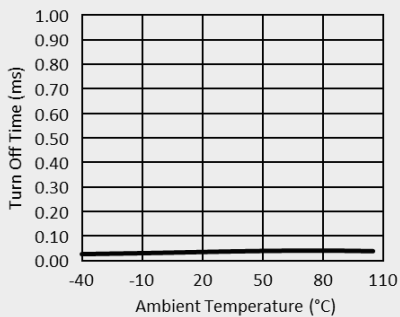
On resistance vs. Ambient temp.



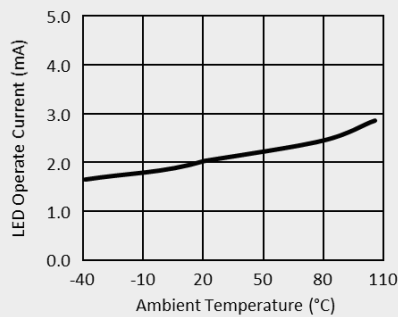
Turn on time vs. Ambient temp.



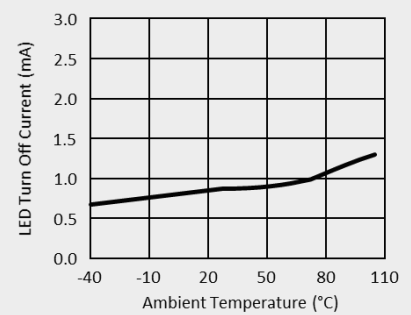
Turn off time vs. Ambient temp.



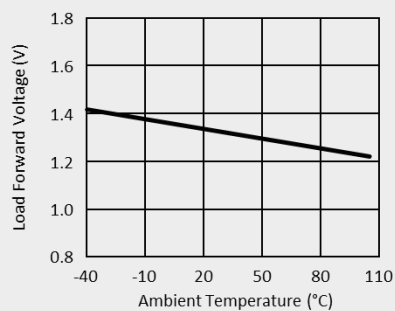
LED operate current vs. Ambient temp.



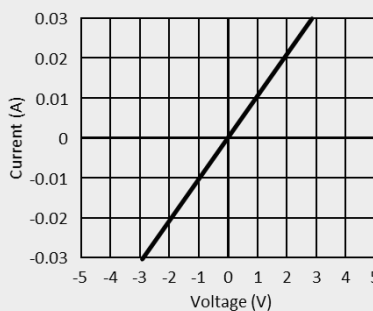
LED turn off current vs. Ambient temp.



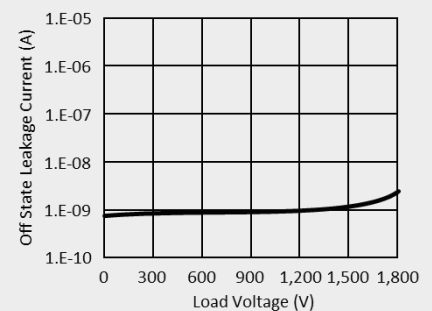
LED forward voltage vs. Ambient temp.



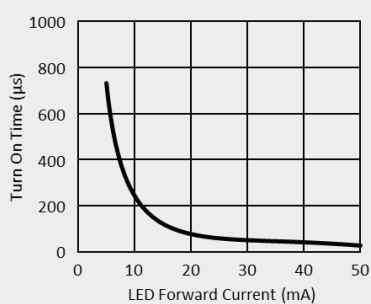
Current vs. Voltage characteristics of output at MOS portion



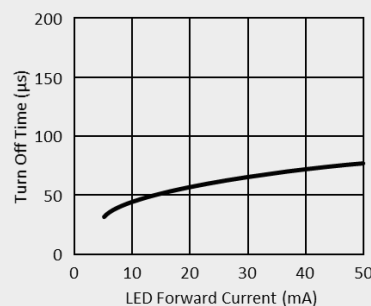
Off state leakage current vs. Load voltage



Turn on time vs. LED forward current



Turn off time vs. LED forward current



Output capacitance vs. Applied voltage

