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TPSI4056DY-T1-GE3
N-Channel 100-V (D-S) MOSFET

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Product Summary

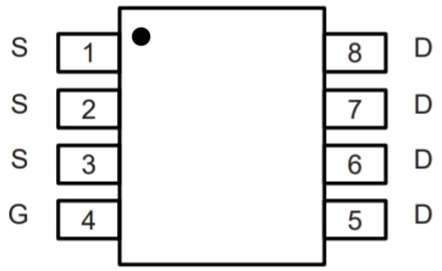
- V_{DS} 100 V
- I_{DS} (@ V_{GS}= 10V) 8A
- $R_{DS(ON)}$ (@ V_{GS}= 10V) ≤ 24mΩ

Reference:SI4056DY-T1-GE3

Application

- LED Backlighting
- Synchronous Rectifiers for SMPS
- Power management
- PWM Application

Package and Pin Configuration



SOP8

Circuit diagram



N-Channel MOSFET

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25℃	I_D	8	A
Continuous Drain Current	T_A=70℃	I_D	6	A
Pulsed Drain Current	(note1)	I_{DM}	32	A
Single Pulse Avalanche Energy		EAS	80	mJ
Maximum Power Dissipation,T_A=25℃		P_D	3.5	W
Operating Junction Temperature Range		T_J	-55 to +150	℃
Storage Temperature Range		T_{stg}	-55 to +150	℃

Thermal Characteristic

PARAMETER		Symbol	Value	Unit
Thermal Resistance Junction-ambient	PCB Mount (note2)	$R_{\theta JA}$	70	°C/W
Thermal Resistance Junction-Case		$R_{\theta JC}$	36	°C/W

notes 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2 . When mounted on 1" square PCB (FR4 material).

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Electrical Characteristics (T_A=25℃unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	BV_{DSS}	100	--	--	V
Gate-Source Threshold Voltage	V_{DS}=V_{GS} , I_D= 250μA	$V_{GS(th)}$	1.0	2.0	3.0	V
Gate-Source Leakage	V_{DS}=0V, V_{GS}= ±20V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS}= 100V, V_{GS}=0V	I_{DSS}	--	--	1	μA
	V_{DS}= 100V, T_J=85°C		--	--	30	μA
Drain-Source On-State Resistance (Note 1)	V_{GS}= 10V, I_D=8A	R_{DS}(on)	--	20	24	mΩ
	V_{GS}= 4.5V, I_D=6A		--	24	32	
Forward Transconductance (Note 2)	V_{DS}= 5V, I_D= 3A	g_{fs}	--	25	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	V_{DS} = 80V, I_D =8A, V_{GS} =10V	Q_g	--	78	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	8.0	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	15	--	
Input Capacitance	V_{DS} =25V, V_{GS} = 0V, F= 1.0MHz	C_{iss}	--	3400	--	pF
Output Capacitance		C_{oss}	--	110	--	
Reverse Transfer Capacitance		C_{rss}	--	90	--	
Switching						
Turn-On Delay Time (Note 3)	V_{DD} = 50V, I_D= 8A, V_{GS} = 10V, R_G = 6Ω.	$t_{d(on)}$	--	20	--	nS
Rise Time (Note 3)		t_r	--	14	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	44	--	
Fall Time (Note 3)		t_f	--	12	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V_{GS} = 0V, I_{SD} = 4A	V_{SD}	--	0.8	1.3	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	8	A
Pulsed Current (Note 1)		I_{SM}	--	--	32	A

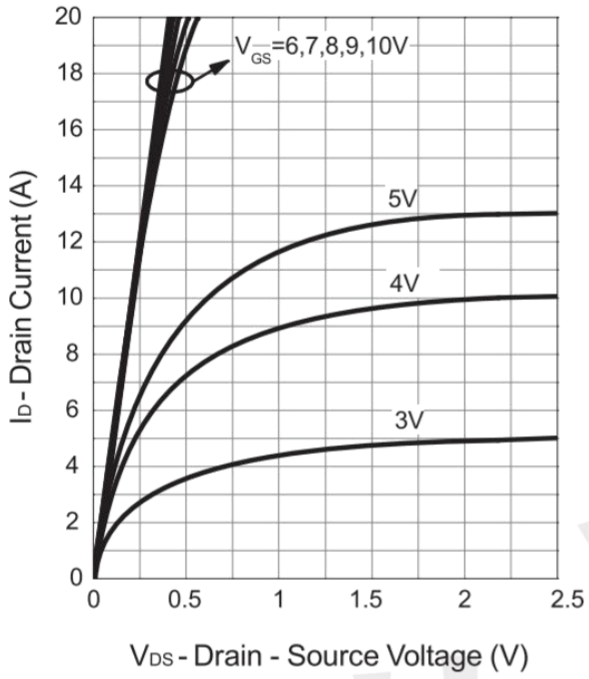
Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

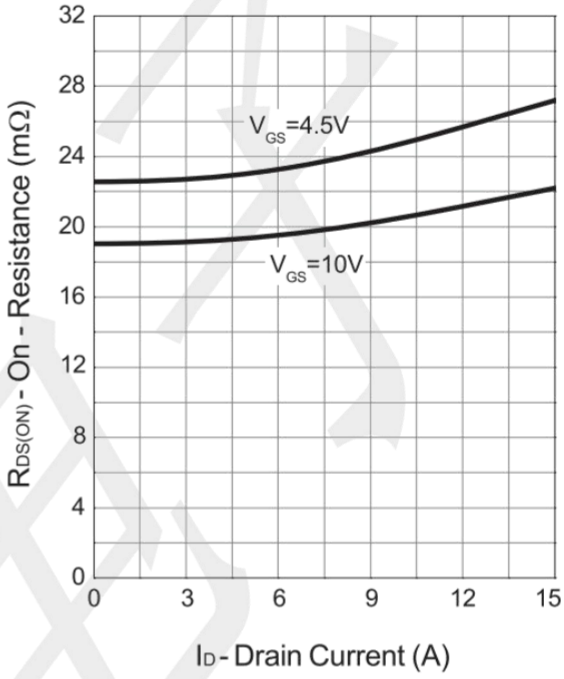
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TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

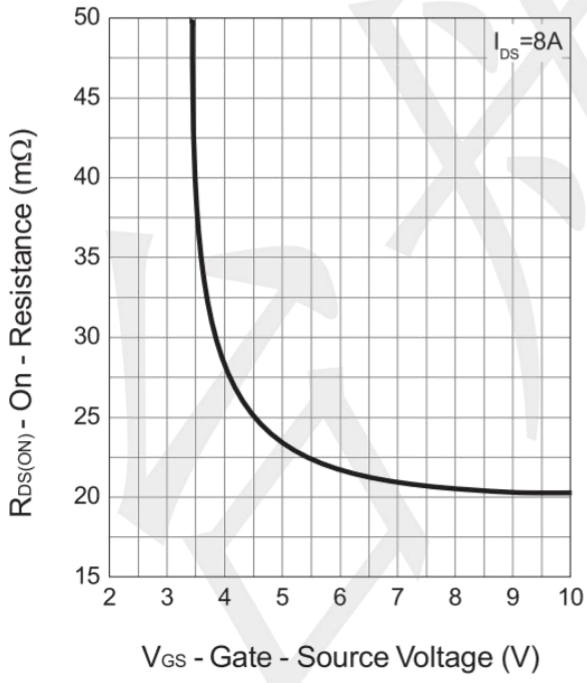
Output Characteristics



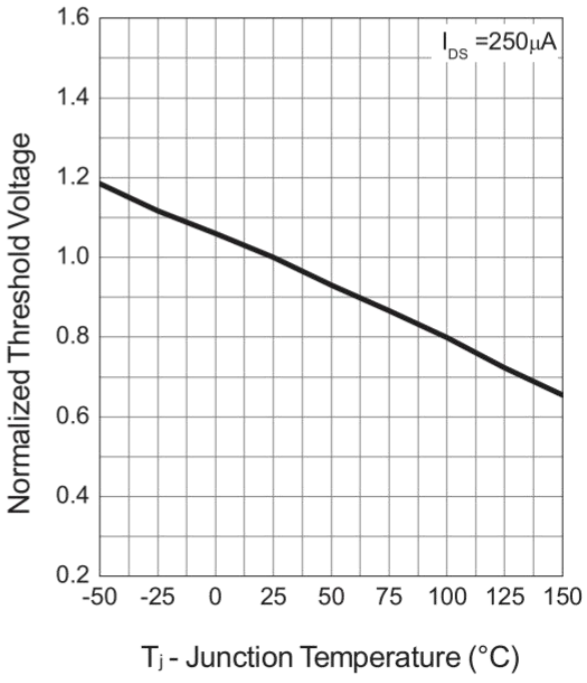
Drain-Source On Resistance



Gate-Source On Resistance

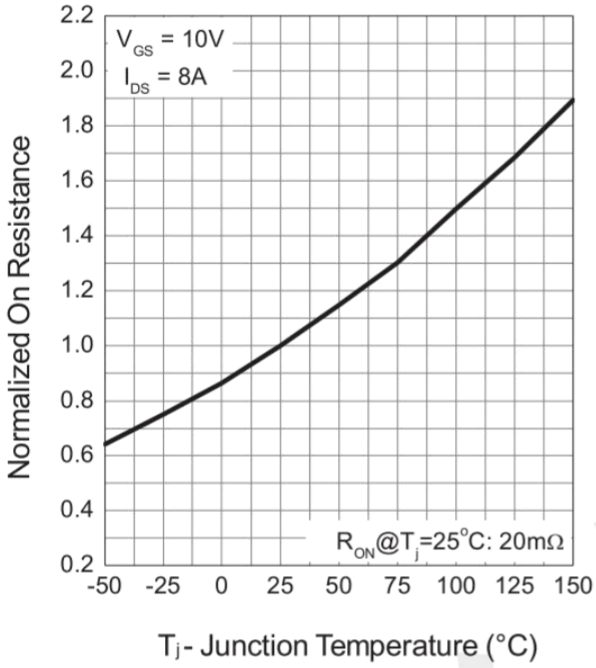


Gate Threshold Voltage

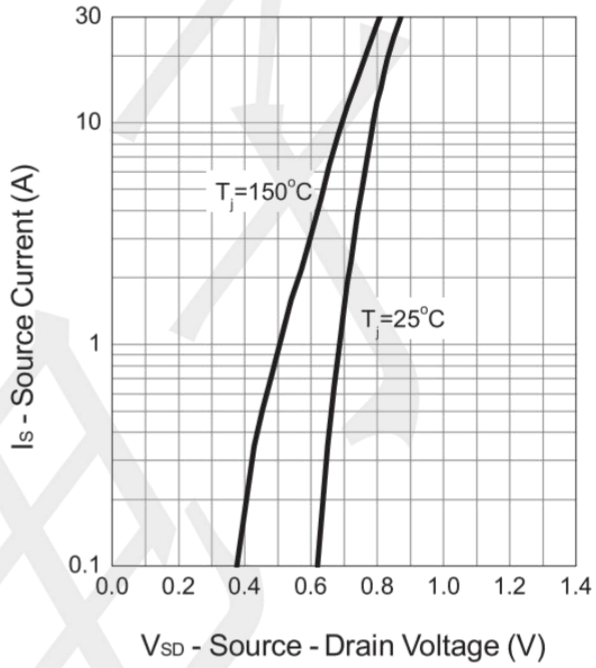


TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

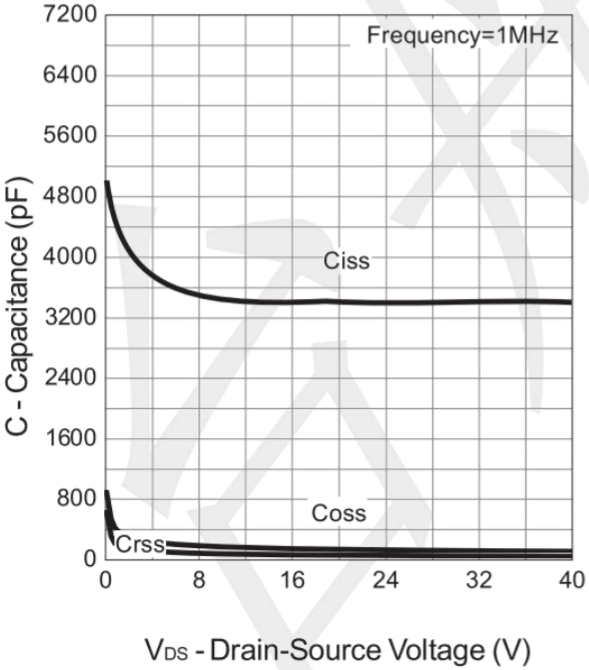
Drain-Source On Resistance



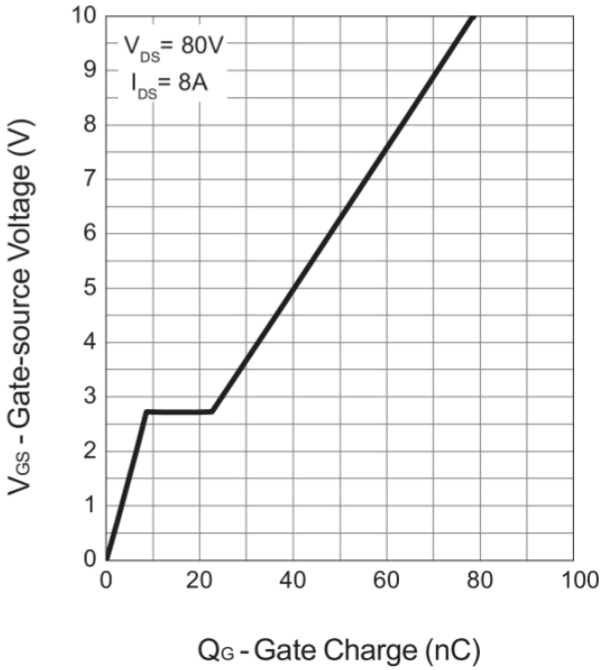
Source-Drain Diode Forward



Capacitance

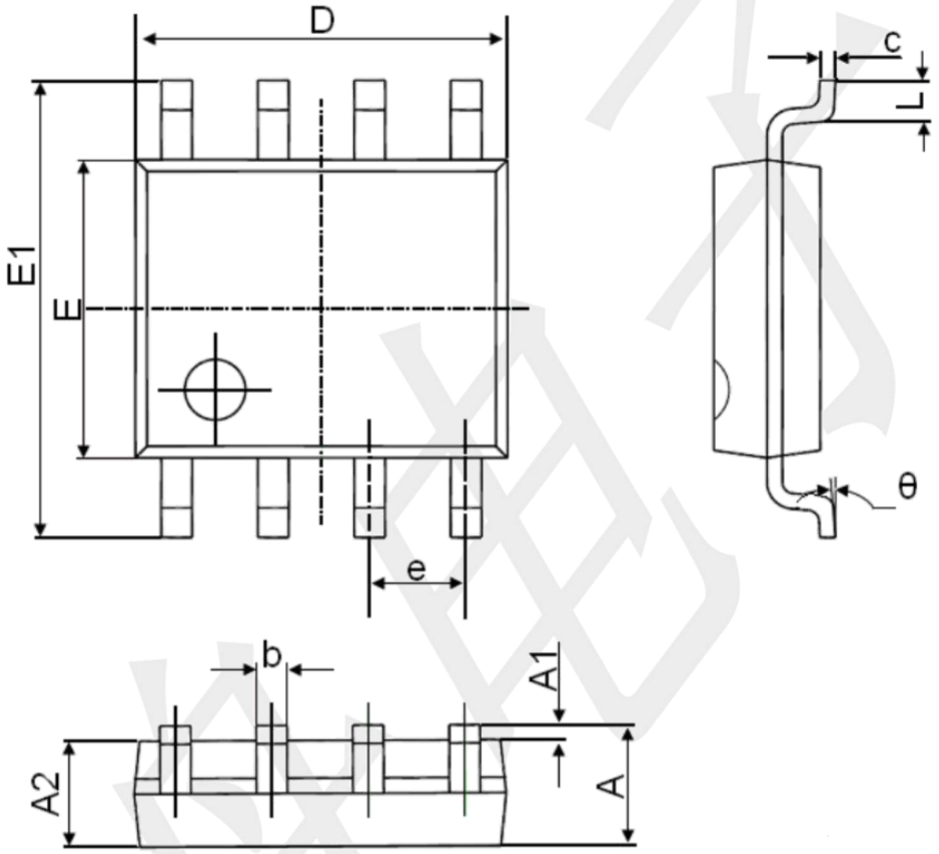


Gate Charge



Package Information

SOP8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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IRLR3110ZTRPBF-TP PNTK3139PT5G TPAX809SS3 TPM3090NK3-5 TPM6028NK3-1 2SJ360-TP BSL215C BV03CWT DMPH6050SK3-TP TPG619C6 TPNUP4202W1T2G ESD5Z7V0 TP6841S6-1 SMFJ24A TPM7002ES3 TPNTD6416ANLT4G PESD9R3.3ST5G SI4936ADY-TP TPM2013PLS8-1 TPS73230DBVR-TP FDMC5614P TPM30V6NS6-2 TPMZB670UPE ESD5Z7V0C TP3USB30Q10 TPESD05R4UD TPM30V8ND6-1 LM337BD2TR4G-TP TPESD1221P TPM20V2PLX6-1