

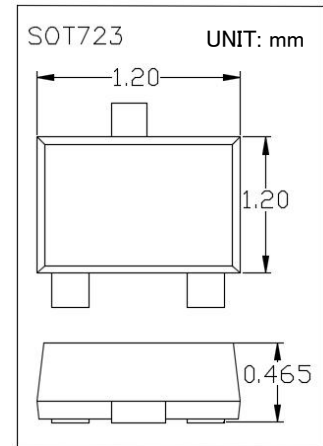
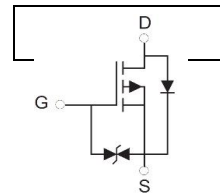
DATA SHEET (Preliminary)

PPL3139K

- ◇Lead Free Product is Acquired
- ◇Surface Mount Package
- ◇P-Channel Switch with Low $R_{DS(on)}$
- ◇Operated at Low Logic Level Gate Drive
- ◇ ESD Protected

Device Marking Code	
PPL3139K	KD

Equivalent Circuit



Maximum Ratings (Ta=25°C Unless Otherwise Noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 8	V
I_D	Drain Current-Continuous (Note 1)	-0.66	A
I_{DM}	Pulsed Drain Current ($t_p = 10\mu s$)	-2.1	A
P_D	Power Dissipation (Note1)	150	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	833	°C/W
T_j	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-55~+150	°C

Electrical Characteristics @25°C Unless Otherwise Specified

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-20			V
$V_{GS(th)}$	Gate-Threshold Voltage (Note2)	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.35	-0.45	-1.1	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS} = \pm 8V, V_{DS}=0V$			± 10	μA
$R_{DS(on)}$	Drain-Source On-Resistance (Note2)	$V_{GS}=-4.5V, I_D=-0.55A$		530	640	$m\Omega$
		$V_{GS}=-2.5V, I_D=-0.45A$		730	950	$m\Omega$
		$V_{GS}=-1.8V, I_D=-0.35A$		1300	1950	$m\Omega$
g_{FS}	Forward Trans conductance (Note2)	$V_{DS} = -10V, I_D = -0.54A$		1.2		S

V_{SD}	Diode Forward Voltage	$I_S=-0.5A, V_{GS}=0V$			-1.2	V
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Dynamic Characteristics(Note4)

C_{iss}	Input Capacitance	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$		58		pF
C_{oss}	Output Capacitance			5.7		
C_{rss}	Reverse Transfer Capacitance			4.4		

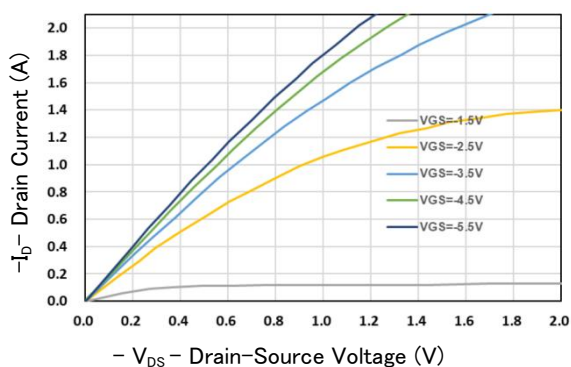
Switching Characteristics (Note4)

$t_d(on)$	Turn-on Delay Time (Note3)	$V_{GS}=-4.5V, V_{DS}=-10V,$ $I_D=-1.33A, R_{GEN}=3\Omega$		0.4		μS
t_r	Turn-on Rise Time (Note3)			0.06		
$t_d(off)$	Turn-off Delay Time (Note3)			0.02		
t_f	Turn-off Fall Time (Note3)			0.8		

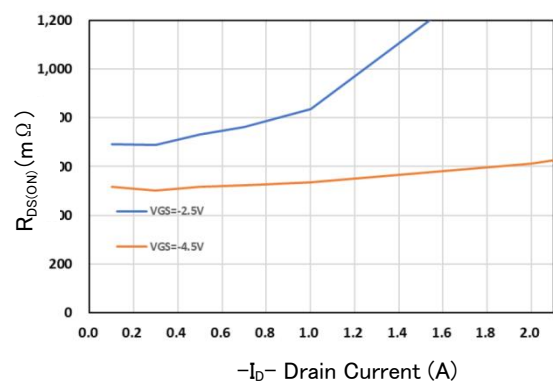
Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test: Pulse Width=300μs, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.

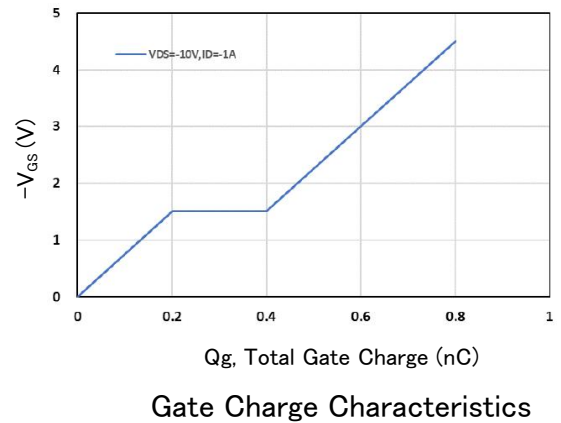
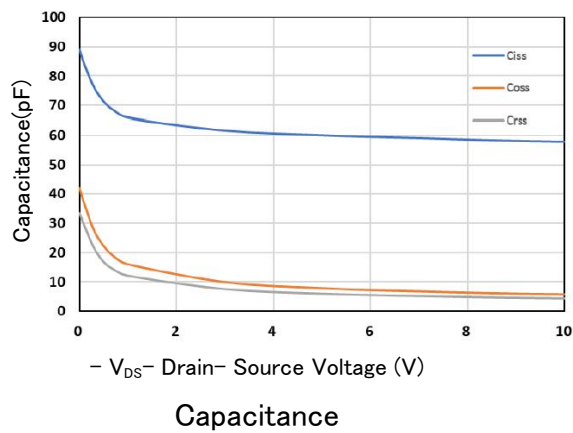
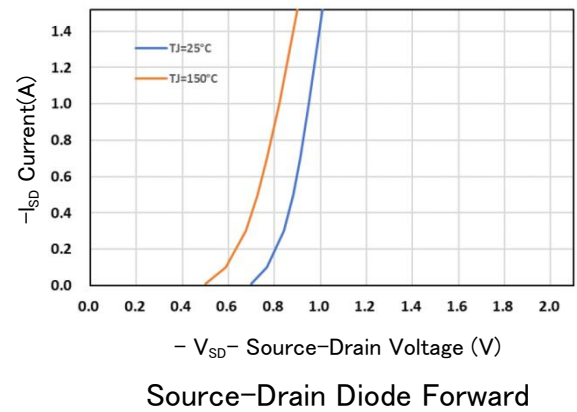
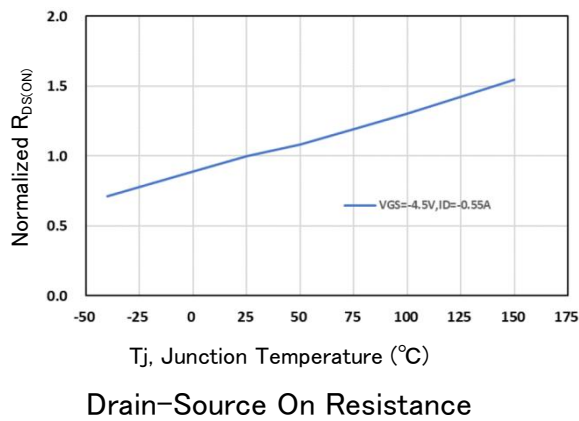
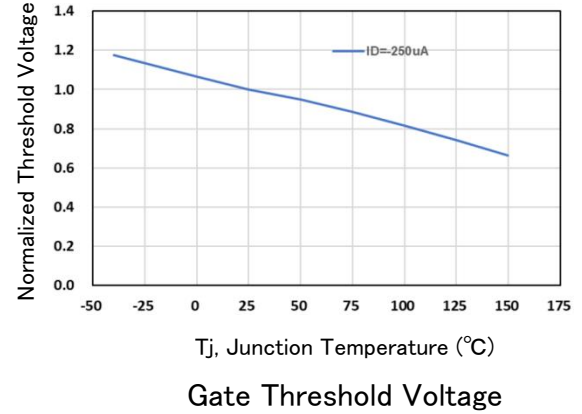
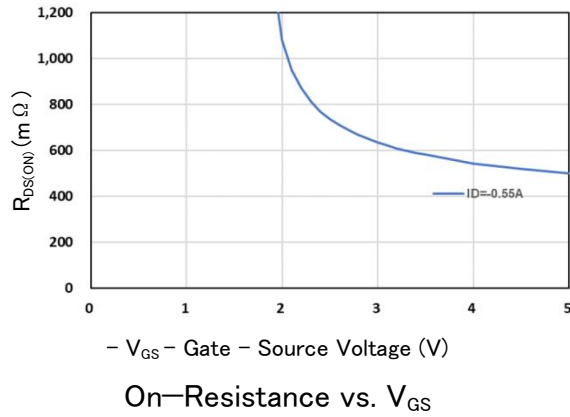
Typical Characteristics



Output Characteristics



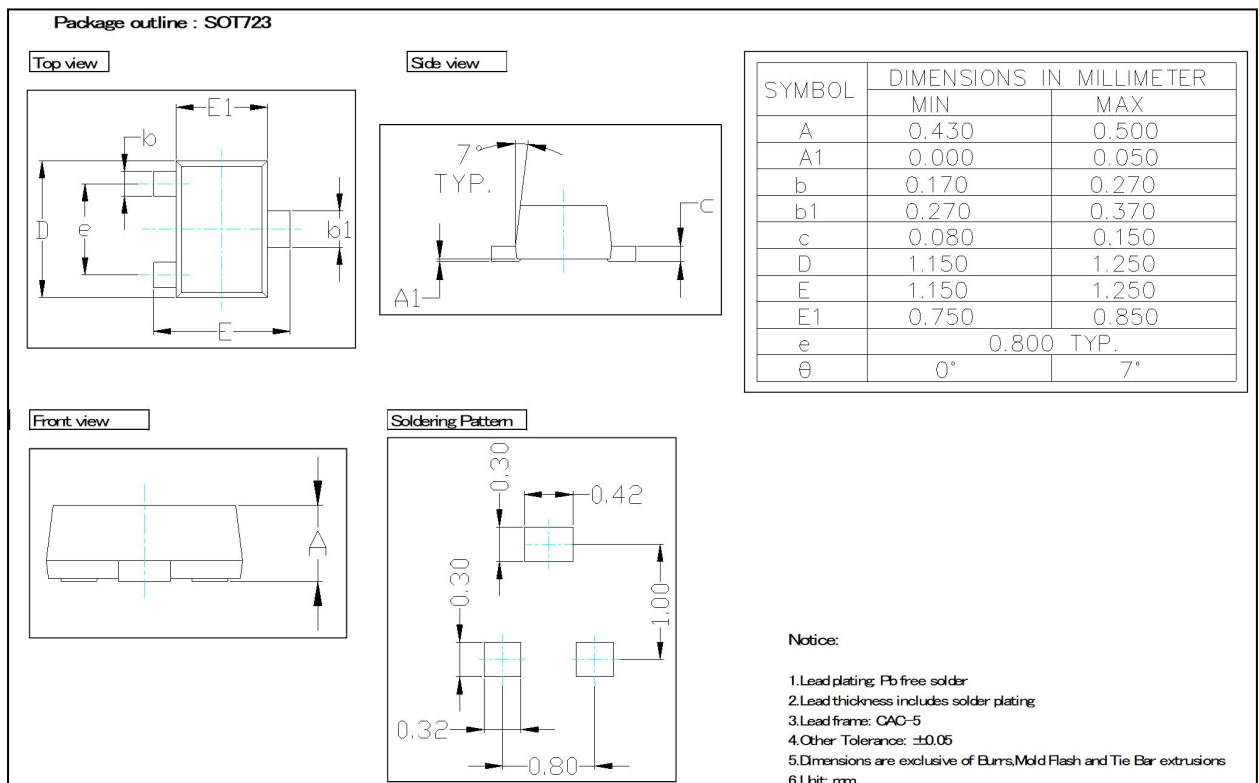
On-Resistance vs. I_D



Ordering Information

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
PPL3139K	SOT723	Tape & Reel 8000pcs /7" Reel	8mm	4mm	Conductive	

Package Dimensions



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