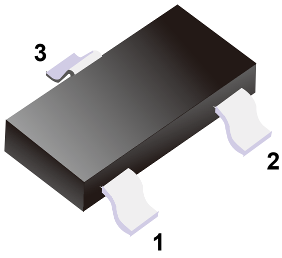
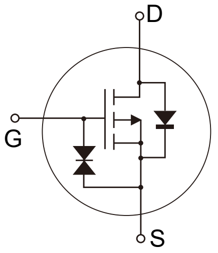
Features

- Energy efficient
- Low threshold voltage
- High-speed switching
- Miniature surface mount package saves board space
- ESD protected(HBM) up to 2KV
- AEC-Q101 Qalified



1.GATE
2.SOURCE
3.DRAIN

■ **Simplified outline(SOT-23)**



■ **Absolute Maximum Ratings** (Ta = 25℃)

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	$-V_{DS}$	50	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$-I_D$	0.13	A
Pulsed Drain Current [Note1] @tp＜10μs	$-I_{DM}$	0.52	
Power Dissipation	P_D	225	mW
Junction and Storage Temperature Range	T_J, T_{STG}	150, -55 to 150	°C
Thermal Characteristics			
Parameter	**Symbol**	**Typ.**	**Units**
Maximum Junction-to-Ambient [Note2]	$R_{\theta JA}$	556	°C/W

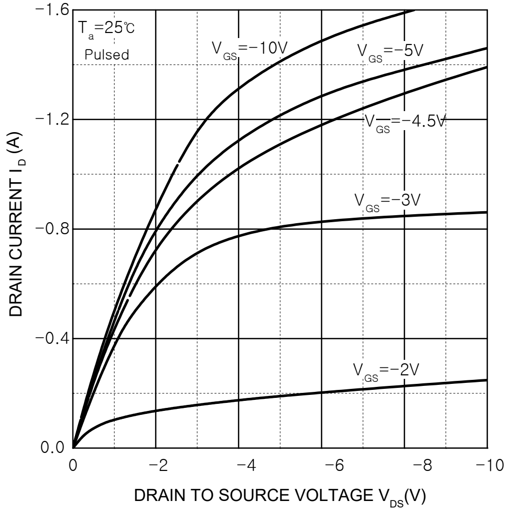
■ Electrical Characteristics (Ta = 25℃)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Static Parameters						
Drain-Source Breakdown Voltage	$-BV_{DSS}$	$-I_D$=250μA, V_{GS}=0V	50	--	--	V
Zero Gate Voltage Drain Current	$-I_{DSS}$	$-V_{DS}$=50V, V_{GS}=0V	--	--	1	μA
		$-V_{DS}$=25V, V_{GS}=0V	--	--	0.1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	--	1	5	μA
Gate Threshold Voltage Note3	$-V_{GS(th)}$	V_{DS}=V_{GS}, $-I_D$=250μA	0.9	1.3	2	V
Static Drain-Source On-Resistance Note3	$R_{DS(ON)}$	$-V_{GS}$=10V, $-I_D$=0.1A	--	1.7	8	Ω
		$-V_{GS}$=5V, $-I_D$=0.1A	--	1.9	10	Ω
Body Diode Forward Voltage	$-V_{SD}$	$-I_S$=0.13A, V_{GS}=0V	--	--	1.2	V
Dynamic Parameters						
Forward Transconductance Note3	g_{FS}	$-V_{DS}$=25V, $-I_D$=0.1A	50	--	--	mS
Input Capacitance	C_{iss}	V_{GS}=0V, $-V_{DS}$=5V, f=1MHz	--	30	--	pF
Output Capacitance	C_{oss}		--	10	--	pF
Reverse Transfer Capacitance	C_{rss}		--	5	--	pF
Switching Parameters						
Turn-On DelayTime	$t_{D(on)}$	$-V_{DD}$=15V, R_L=50Ω, $-I_D$=2.5A	--	2.5	--	ns
Turn-On Rise Time	t_r		--	1	--	ns
Turn-Off DelayTime	$t_{D(off)}$		--	16	--	ns
Turn-Off Fall Time	t_f		--	8	--	ns
Source -Drain Diode characteristics						
Diode forward current	$-I_S$		--	--	0.13	A
Diode pulsed forward current	$-I_{SM}$		--	--	0.52	A

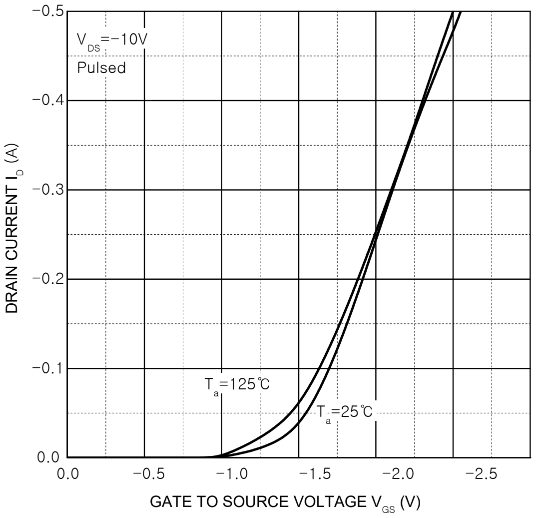
Notes: 1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t≤ 10s.
3. Pulse Test : Pulse Width≤ 300μs, Duty Cycle≤ 2%.

Typical Performance Characteristics

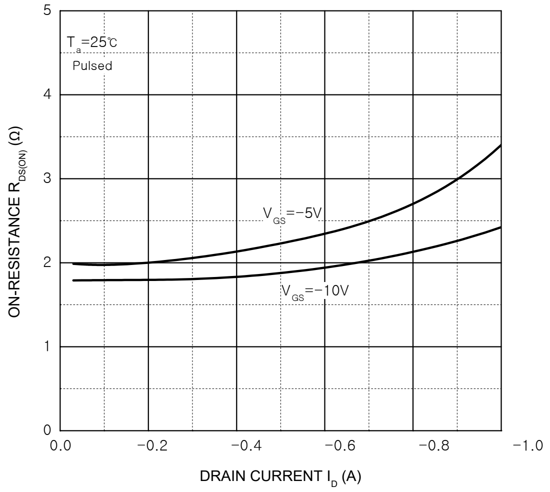
Output Characteristics



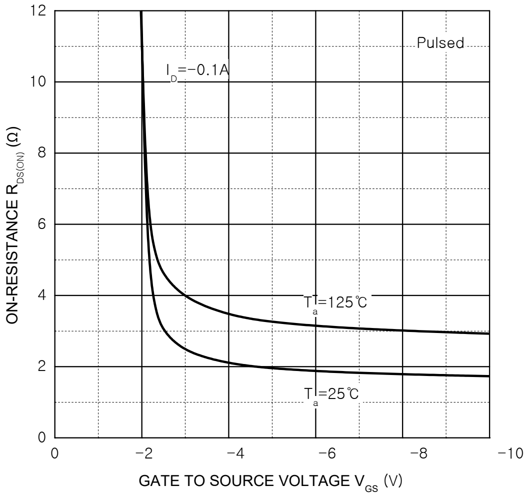
Transfer Characteristics



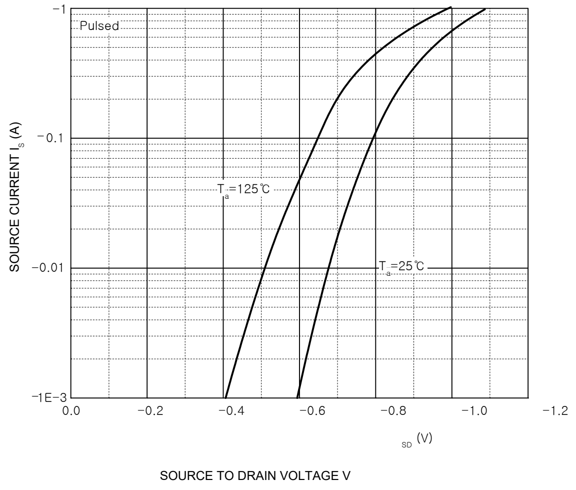
$R_{DS(ON)}$ - I_D



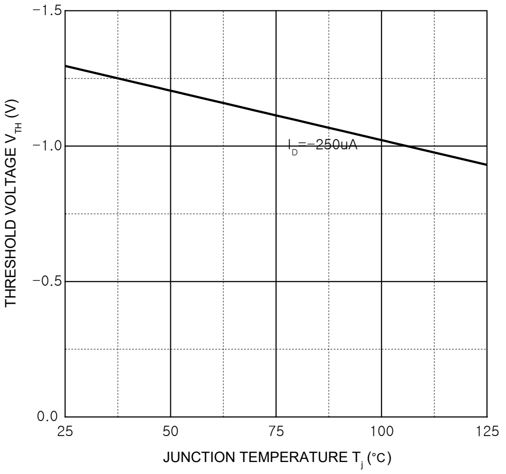
$R_{DS(ON)}$ - V_{GS}



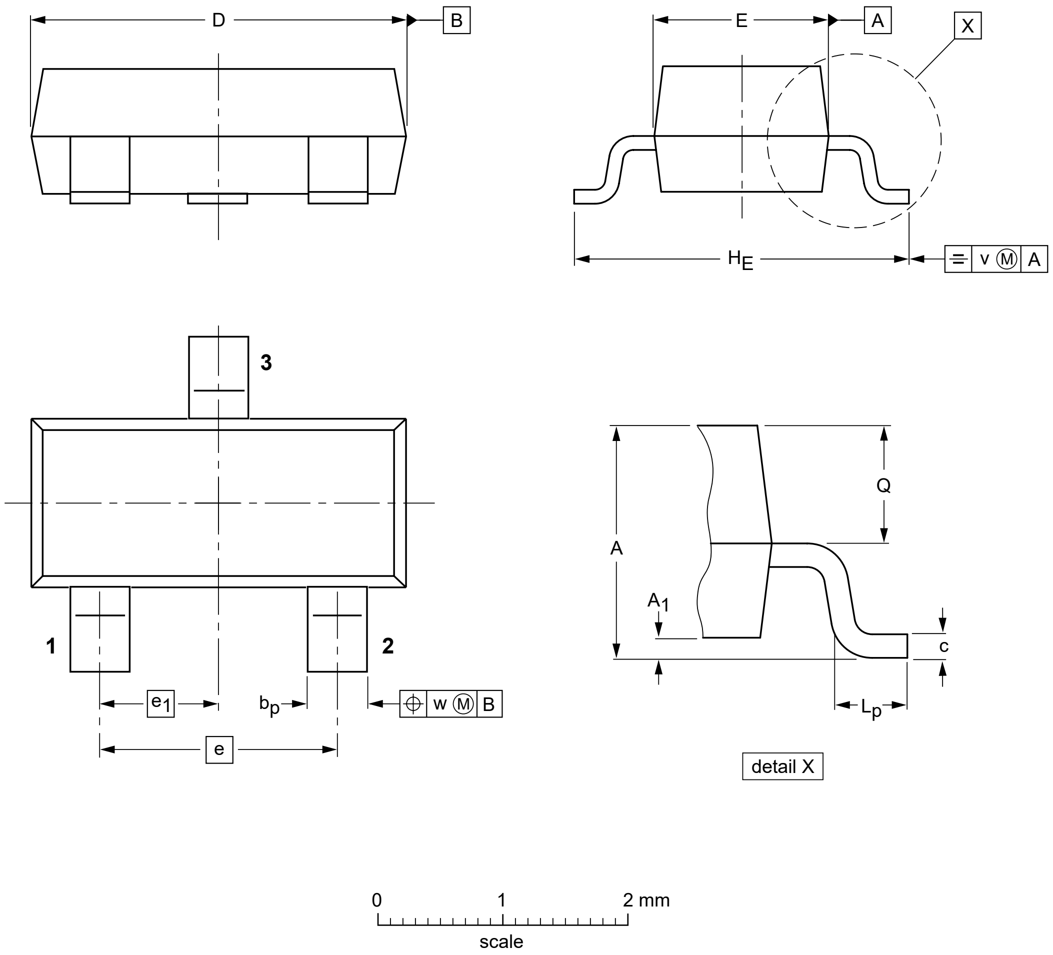
I_S - V_{SD}



Threshold Voltage



■ SOT-23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max.	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1