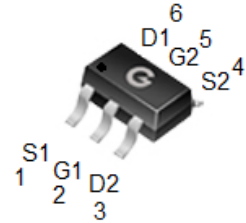
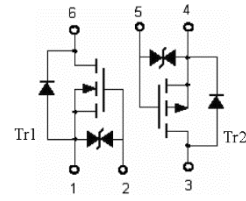


Features

- Low on-resistance
- ESD protected
- High speed switching
- Low leakage current
- Halogen free
- Qualified to AEC-Q101 standards for high reliability

HF



SOT-363

Mechanical Data

- Case: SOT-363
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TBL3439	SOT-363	3000 pcs / Tape & Reel	3439

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Tr1	Tr2	Unit
Drain-to-Source Voltage	V _{DSS}	30	-30	V
Gate-to-Source Voltage	V _{GSS}	±12	±12	V
Continuous Drain Current	I _D	0.75	-0.4	A
Pulsed Drain Current *1	I _{DM}	2.2	-1.2	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T _A = 25°C)	P _D	0.31	W
Thermal Resistance Junction-to-Air *2	R _{θJA}	403	°C/W
Operating Junction Temperature Range	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Electrical Characteristics-Tr2 (@ T_A = 25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250μA	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -30V, V _{GS} = 0V	-	-	-1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±10V, V _{DS} = 0V	-	-	±10	μA
On Characteristics *3						
R _{DS(ON)}	Static Drain-Source On-resistance	V _{GS} = -10V, I _D = -0.3A	-	-	0.62	Ω
		V _{GS} = -4.5V, I _D = -0.3A	-	-	0.90	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-0.55	-	-1.95	V
Dynamic Characteristics *4						
C _{ISS}	Input Capacitance	V _{GS} = 0V V _{DS} = -10V f = 1.0MHz	-	120	-	pF
C _{OSS}	Output Capacitance		-	18	-	
C _{RSS}	Reverse Transfer Capacitance		-	9	-	
Switching Characteristics *4						
t _{d(ON)}	Turn-on Delay Time	V _{DD} = -10V V _{GS} = -4.5V R _G = 10Ω I _D = -0.2A	-	9	-	ns
t _r	Turn-on Rise Time		-	6	-	
t _{d(OFF)}	Turn-Off Delay Time		-	34	-	
t _f	Turn-Off Fall Time		-	20	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} = -0.4A, V _{GS} = 0V	-	-	-1.2	V

Electrical Characteristics-Tr1 (@ T_A = 25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 30V, V _{GS} = 0V	-	-	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±10V, V _{DS} = 0V	-	-	±10	μA
On Characteristics *3						
R _{DS(ON)}	Static Drain-Source On-resistance	V _{GS} = 10V, I _D = 0.6A	-	-	0.37	Ω
		V _{GS} = 4.5V, I _D = 0.6A	-	-	0.42	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	0.5	-	1.5	V
Dynamic Characteristics						
C _{ISS}	Input Capacitance	V _{GS} = 0V V _{DS} = 10V f = 1.0MHz	-	44	-	pF
C _{OSS}	Output Capacitance		-	15	-	
C _{RSS}	Reverse Transfer Capacitance		-	8	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time	V _{DD} = 10V V _{GS} = 4.5V R _G = 51Ω I _D = 0.7A	-	5	-	ns
t _r	Turn-on Rise Time		-	8	-	
t _{d(OFF)}	Turn-Off Delay Time		-	23	-	
t _f	Turn-Off Fall Time		-	41	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} = 0.6A, V _{GS} = 0V	-	-	1.2	V

Notes:

1. Pulse width limited by maximum junction temperature
2. Surface Mounted on FR4 Board, t < 5 sec
3. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%
4. Guaranteed by design, not subject to production testing

Ratings and Characteristics Curves-Tr2 (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

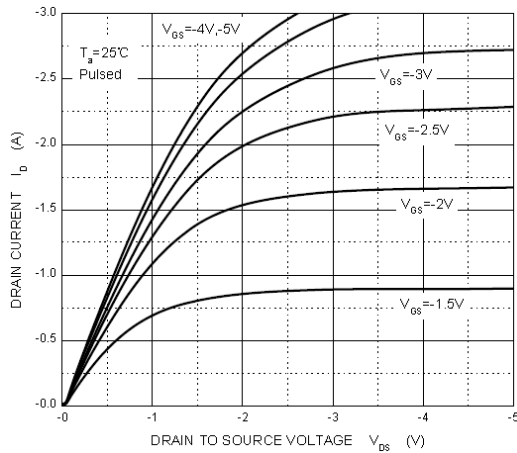


Fig 1 Output Characteristics

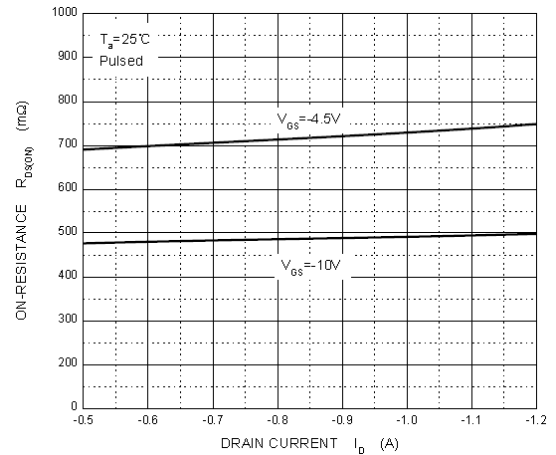


Fig 2 On-Resistance vs. Drain Current
and Gate Voltage

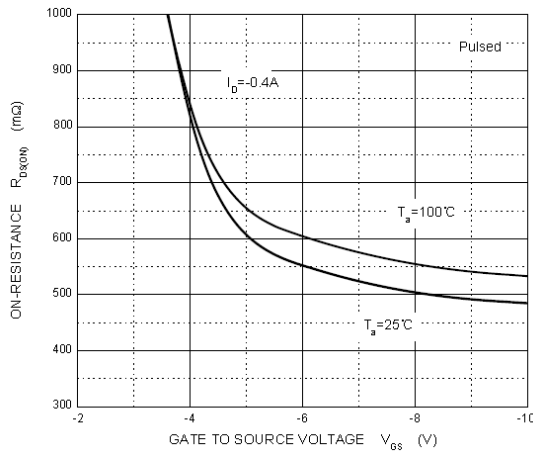


Fig 3 On-Resistance vs. Gate-Source Voltage

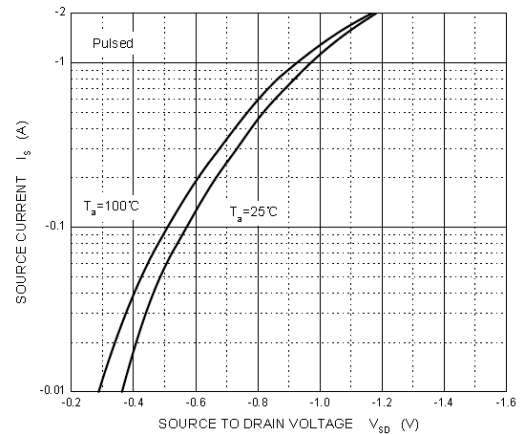


Fig 4 Body-Diode Characteristics

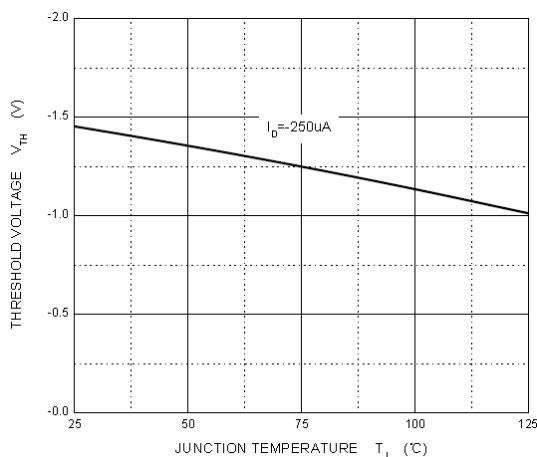


Fig 5 Gate Voltage vs. Junction Temperature

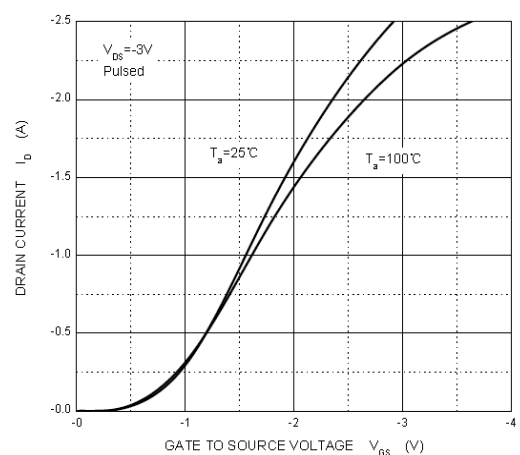


Fig 6 Transfer Characteristics

Ratings and Characteristics Curves-Tr1 (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

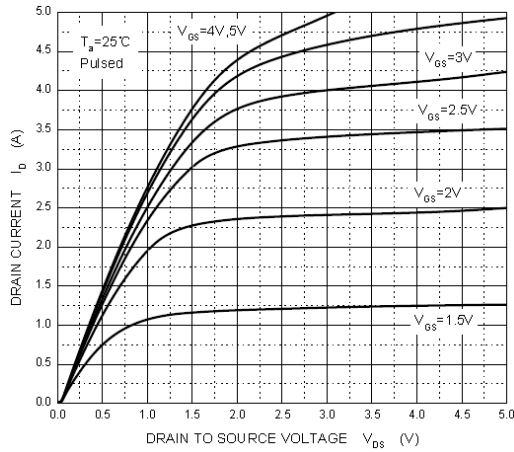


Fig 1 Output Characteristics

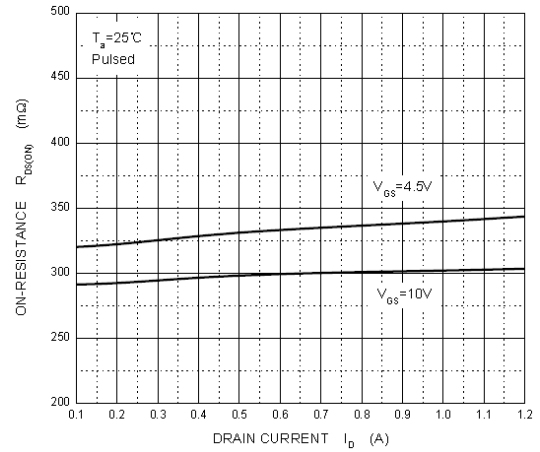


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

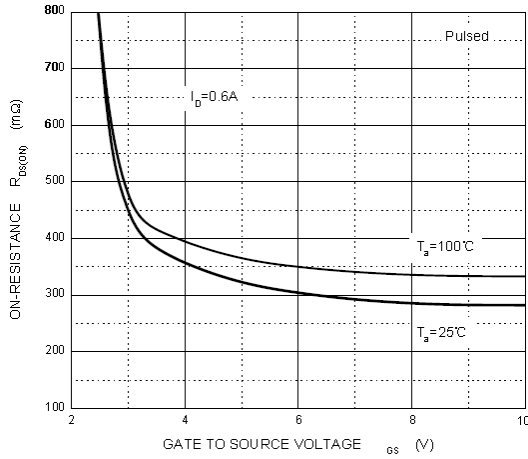


Fig 3 On-Resistance vs. Gate-Source Voltage

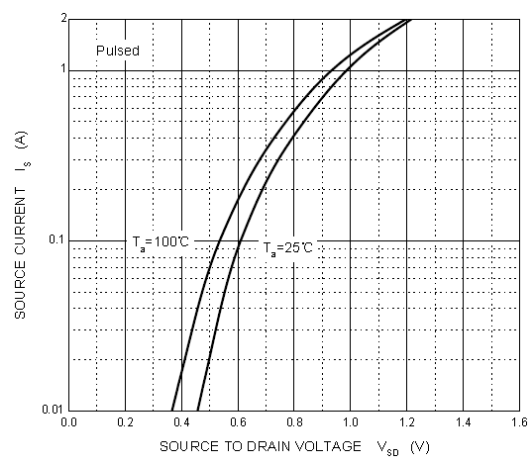


Fig 4 Body-Diode Characteristics

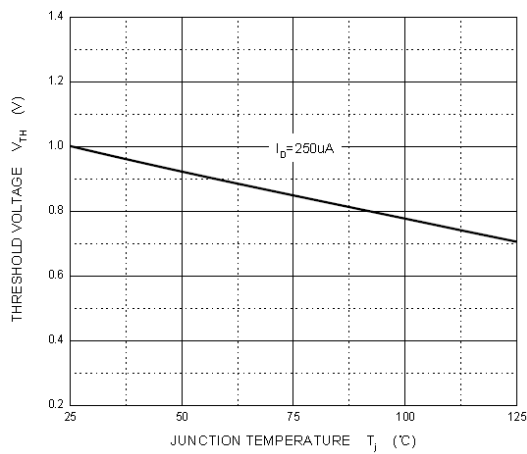


Fig 5 Gate Voltage vs. Junction Temperature

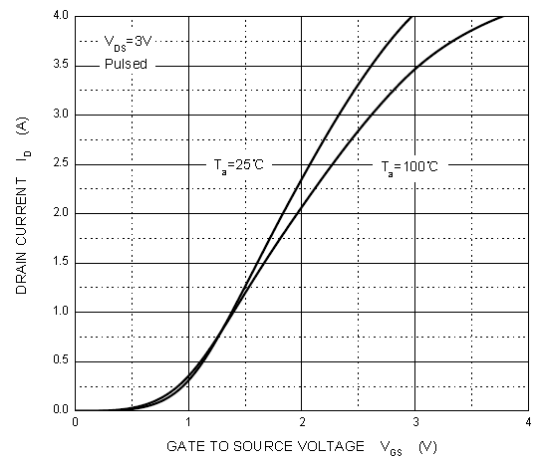
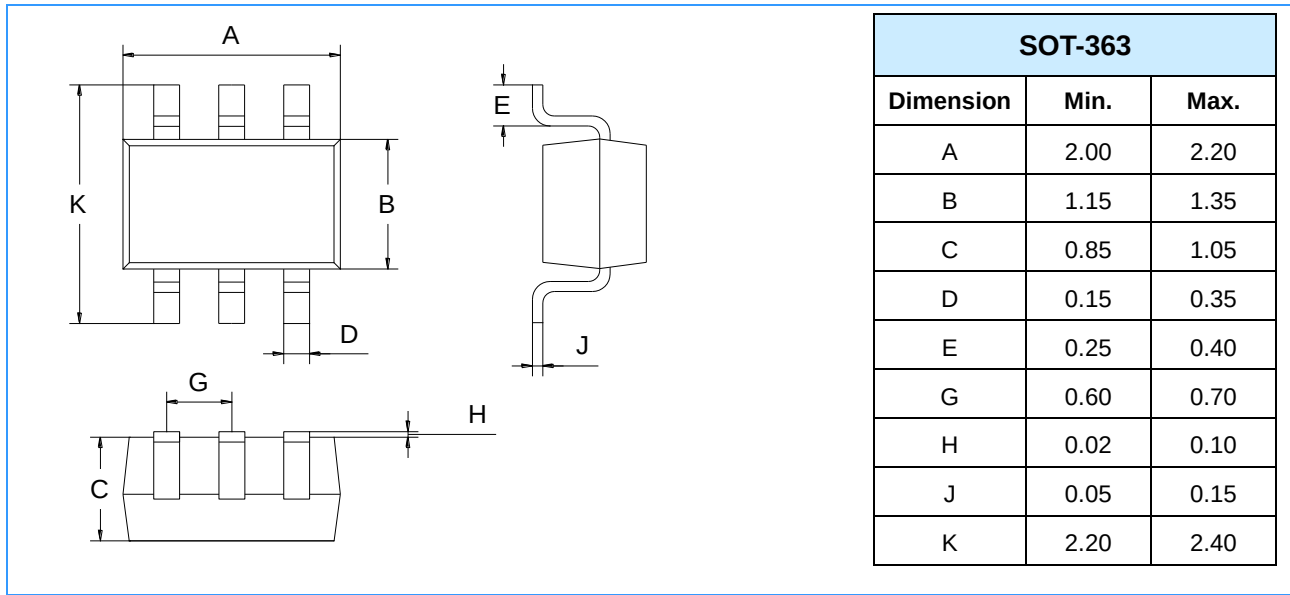
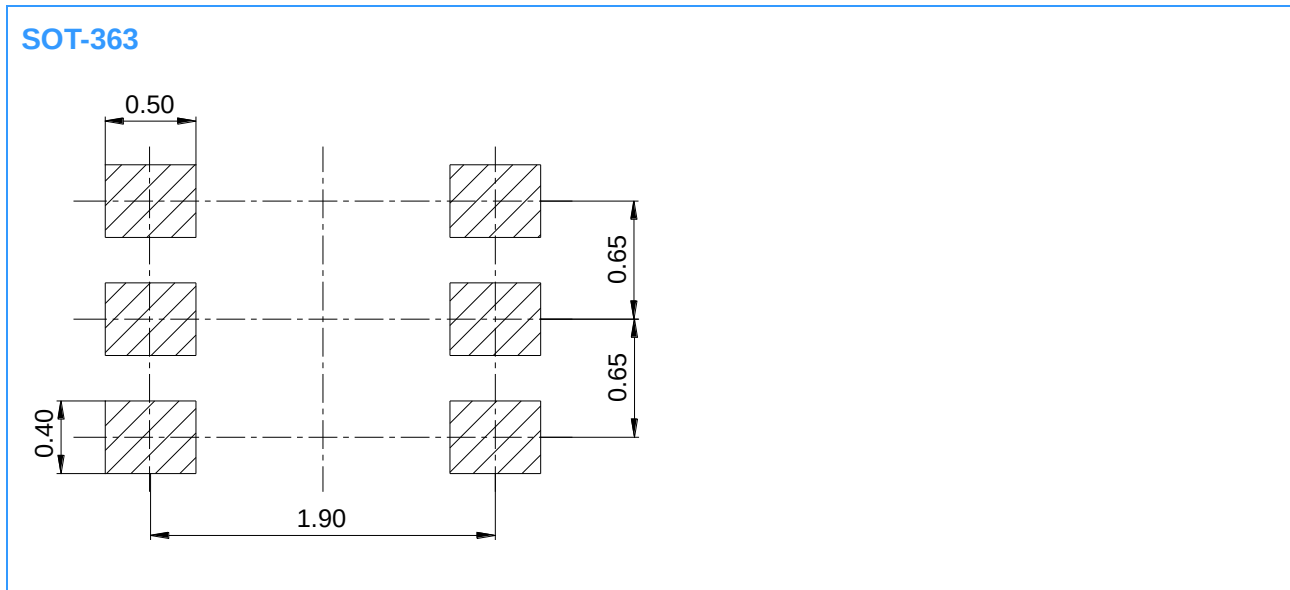


Fig 6 Transfer Characteristics

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



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