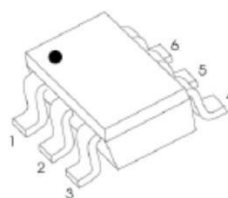


Features

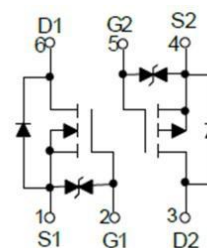
We declare that the material of product are Halogen Free and compliance with RoHS requirements.

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SOT-363



Equivalent Circuit



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

MAXIMUM RATINGS TR1 (T_a=25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	50	V _{dc}
Gate-to-Source Voltage – Continuous	V_{GS}	± 20	V _{dc}
Drain Current – Continuous @ T _A = 25°C – Pulsed Drain Current (t _p ≤ 10 μs)	I_D I_{DM}	130 520	mA
Total Power Dissipation @ T _A = 25°C	P _D	380	mW
Operating and Storage Temperature Range	T _J , T _{stg}	– 55 to 150	°C
Thermal Resistance – Junction-to-Ambient	R _{θJA}	328	°C/W
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T _L	260	°C

Electrical Characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

N-Channel

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage ($V_{GS} = 0 \text{ Vdc}$, $I_D = 250 \mu\text{Adc}$)	$V_{(BR)DSS}$	50	—	—	Vdc
Zero Gate Voltage Drain Current ($V_{DS} = 25 \text{ Vdc}$, $V_{GS} = 0 \text{ Vdc}$) ($V_{DS} = 50 \text{ Vdc}$, $V_{GS} = 0 \text{ Vdc}$)	I_{DSS}	— —	— —	0.1 0.5	μAdc
Gate-Source Leakage Current ($V_{GS} = \pm 20 \text{ Vdc}$, $V_{DS} = 0 \text{ Vdc}$)	I_{GSS}	—	—	± 10	μAdc

ON CHARACTERISTICS (Note 1.)

Gate-Source Threshold Voltage ($V_{DS} = V_{GS}$, $I_D = 1.0 \text{ mAdc}$)	$V_{GS(th)}$	0.8	—	2.0	Vdc
Static Drain-to-Source On-Resistance ($V_{GS} = 2.75 \text{ Vdc}$, $I_D < 200 \text{ mAdc}$, $T_A = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$) ($V_{GS} = 5.0 \text{ Vdc}$, $I_D = 200 \text{ mAdc}$)	$r_{DS(on)}$	— —	5.6 —	10 3.5	Ohms

DYNAMIC CHARACTERISTICS

Input Capacitance	($V_{DS} = 25 \text{ Vdc}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$)	C_{iss}	—	42	—	pF
Output Capacitance	($V_{DS} = 25 \text{ Vdc}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$)	C_{oss}	—	15	—	
Transfer Capacitance	($V_{DG} = 25 \text{ Vdc}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$)	C_{rss}	—	3	—	

SWITCHING CHARACTERISTICS (Note 2.)

Turn-On Delay Time	($V_{DD} = 30 \text{ Vdc}$, $I_D = 0.2 \text{ Adc}$)	$t_{d(on)}$	—	5	—	ns
Turn-Off Delay Time		$t_{d(off)}$	—	7	—	

1. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2\%$.
2. Switching characteristics are independent of operating junction temperature.

Electrical Characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

P-Channel

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage ($V_{GS} = 0\text{ Vdc}$, $I_D = -250\text{ }\mu\text{Adc}$)	$V_{(BR)DSS}$	-50	—	—	Vdc
Zero Gate Voltage Drain Current ($V_{DS} = -25\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$) ($V_{DS} = -50\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$) ($V_{DS} = -50\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$, $T_J = 125^{\circ}\text{C}$)	I_{DSS}	— — —	— — —	-0.1 -15 -60	μAdc
Gate-Body Leakage Current ($V_{GS} = \pm 20\text{ Vdc}$, $V_{DS} = 0\text{ Vdc}$)	I_{GSS}	—	—	± 10	μAdc

ON CHARACTERISTICS (Note 1.)

Gate-Source Threshold Voltage ($V_{DS} = V_{GS}$, $I_D = -250\text{ }\mu\text{Adc}$)	$V_{GS(th)}$	-0.8	—	-2.0	Vdc
Static Drain-to-Source On-Resistance ($V_{GS} = -5.0\text{ Vdc}$, $I_D = -100\text{ mAdc}$)	$r_{DS(on)}$	—	5.0	10	Ohms

DYNAMIC CHARACTERISTICS

Input Capacitance	($V_{DS} = -5.0\text{ Vdc}$)	C_{iss}	—	30	—	pF
Output Capacitance	($V_{DS} = -5.0\text{ Vdc}$)	C_{oss}	—	10	—	
Transfer Capacitance	($V_{DG} = -5.0\text{ Vdc}$)	C_{rss}	—	5.0	—	

SWITCHING CHARACTERISTICS (Note 2.)

Turn-On Delay Time	(V _{DD} = -15 Vdc, I _D = -2.5 Adc, R _L = 50 Ω)	$t_{d(on)}$	—	13	—	ns
Rise Time		t_r	—	6	—	
Turn-Off Delay Time		$t_{d(off)}$	—	16	—	
Fall Time		t_f	—	3	—	
Gate Charge		Q_T	—	6000	—	pC

1. Pulse Test: Pulse Width 300 μs , Duty Cycle 2%.
2. Switching characteristics are independent of operating junction temperature.

RATING AND CHARACTERISTIC CURVES

N-Channel

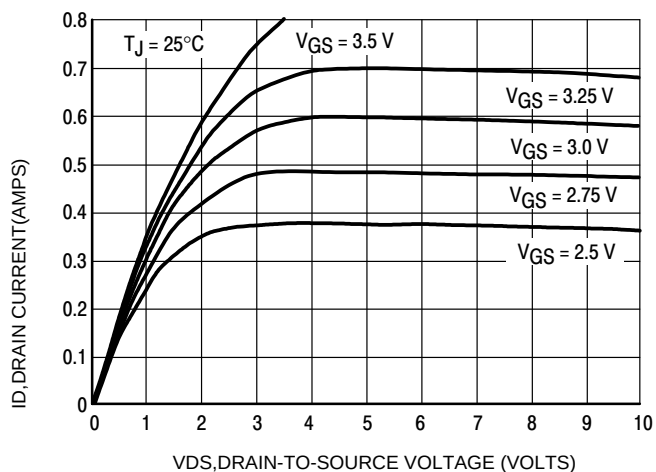


Figure 1. On-Region Characteristics

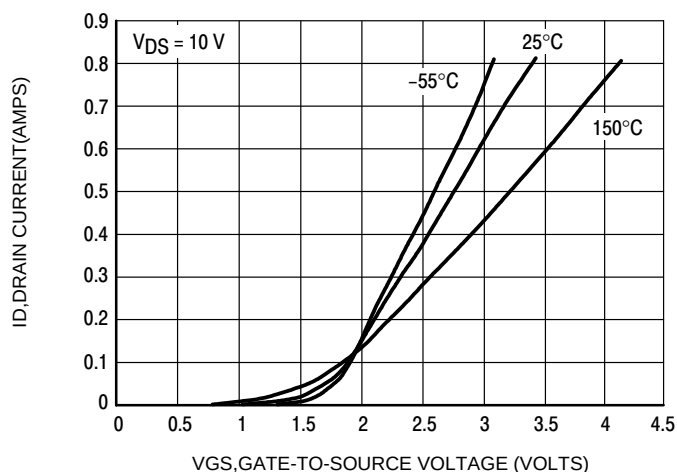


Figure 2. Transfer Characteristics

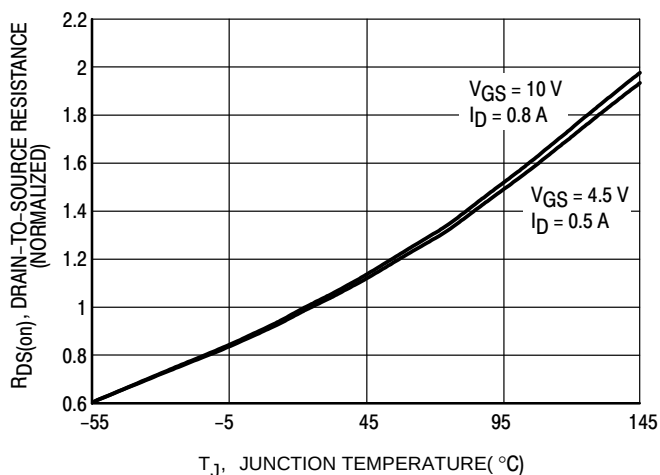


Figure 3. On-Resistance Variation with Temperature

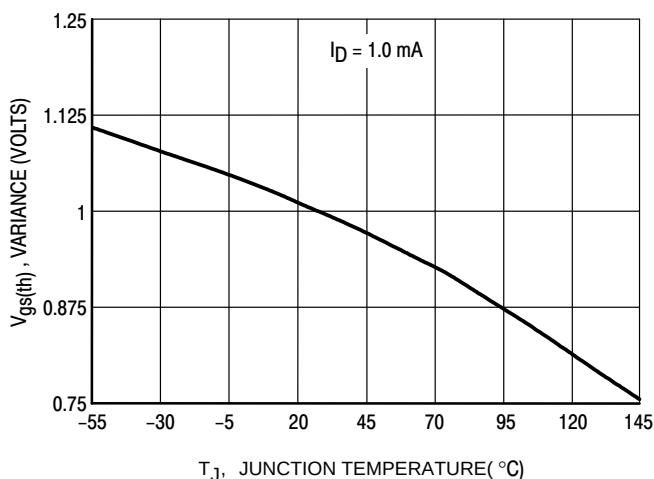


Figure 4. Threshold Voltage Variation with Temperature

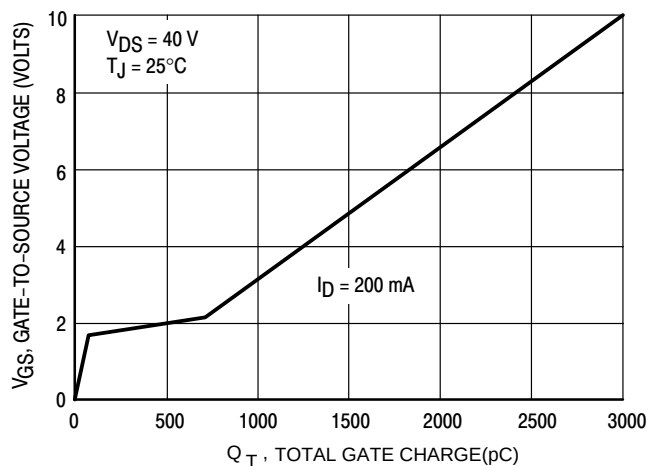


Figure 5. Gate Charge

RATING AND CHARACTERISTIC CURVES

P-Channel

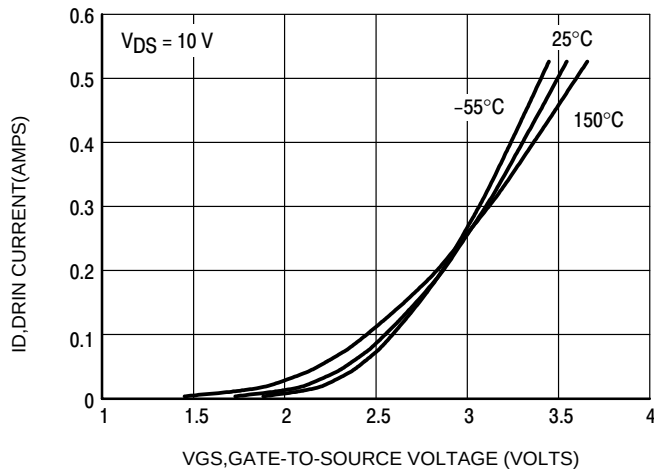


Figure 1. Transfer Characteristics

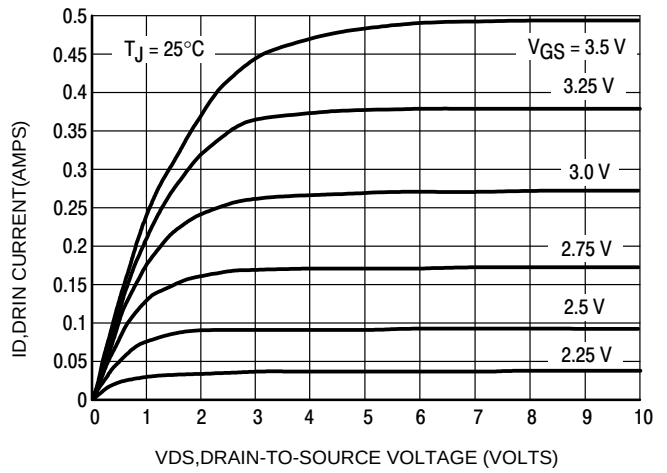


Figure 2. On-Region Characteristics

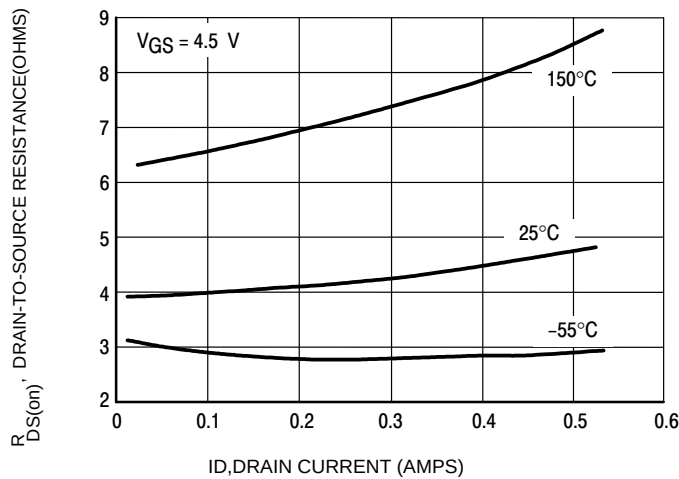


Figure 3. On-Resistance versus Drain Current

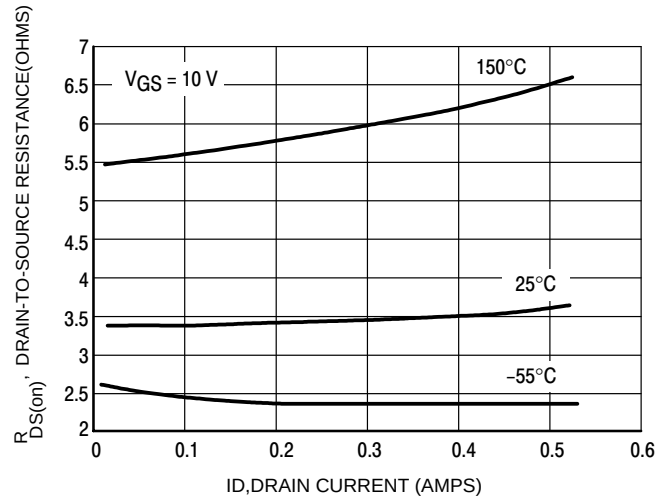


Figure 4. On-Resistance versus Drain Current

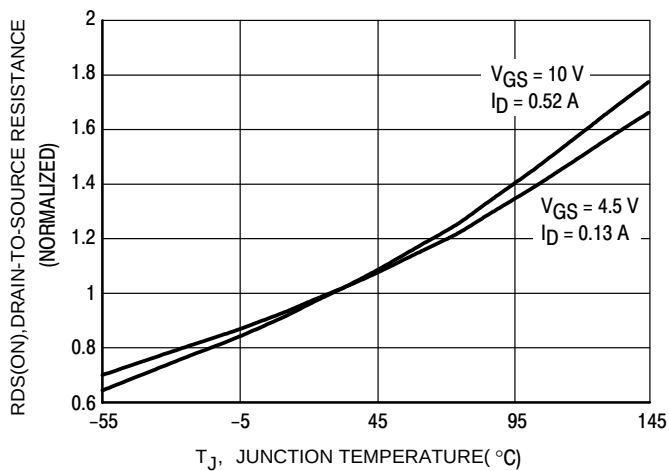


Figure 5. On-Resistance Variation with Temperature

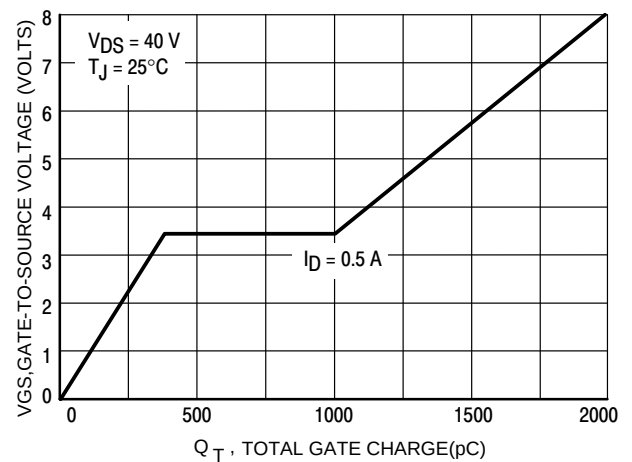
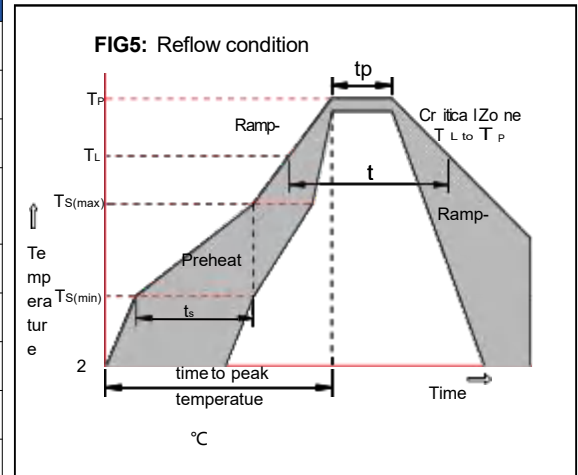


Figure 6. Gate Charge

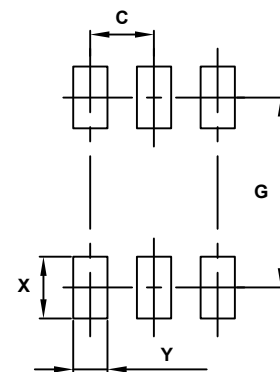
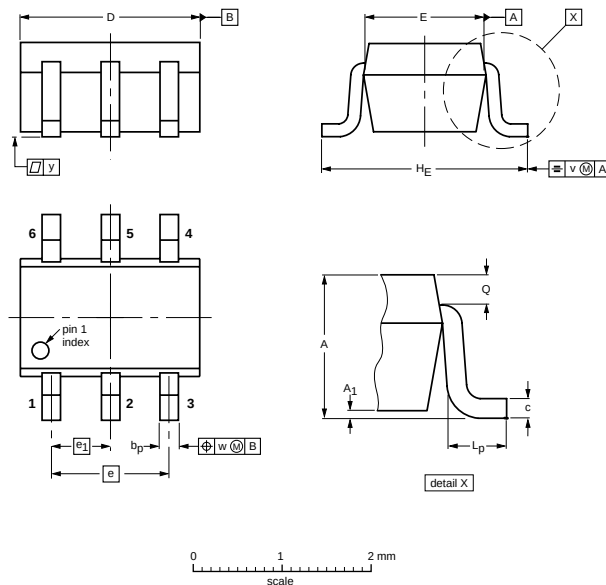
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C



Package Dimensions & Suggested Pad Layout

SOT-363



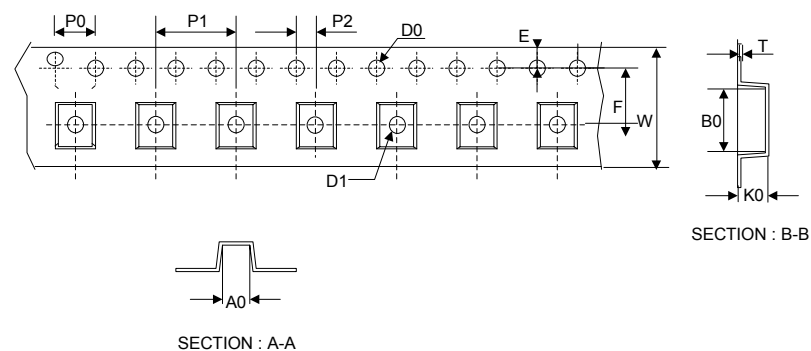
Dimensions	Value (in mm)
C	0.65
G	1.90
X	0.85
Y	0.40

DIMENSIONS (mm are the original dimensions)

UNIT	A	A1 max	b _p	c	D	E	e	e ₁	H _E	L _P	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

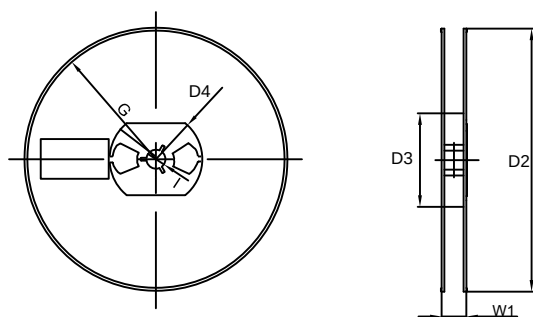
Tape & reel specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	4.00±0.20
P2	2.00±0.20
D0	1.55±0.20
D1	1.00±0.20
E	1.55±0.25
F	3.60±0.20
W	8.00±0.20
A0	3.00±0.20
B0	3.00±0.20
K0	1.30±0.20
T	0.20±0.20
D2	177.0±5.0
D3	55Min.
D4	R24.6±2.0
G	R82.0±2.0
I	13.0±2.0
W1	10.20±3.0

7" Reel



Quantity: 3000PCS