

Dual P-Channel Power MOSFET

-20V, -3.7A, 140mΩ

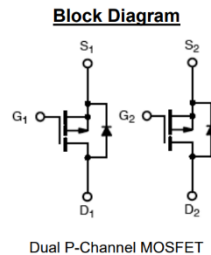
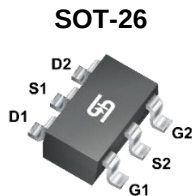
FEATURES

- 1.8V drive
- Pb-free plating
- RoHS compliant
- Halogen-free

APPLICATIONS

- Power management
- Load switch

PRODUCT SUMMARY			
PARAMETER		VALUE	UNIT
V_{DS}		-20	V
$R_{DS(on)}$ (max)	$V_{GS} = -4.5V$	140	mΩ
	$V_{GS} = -2.5V$	200	
	$V_{GS} = -1.8V$	300	
Q_g	$V_{GS} = -4.5V$	7	nC


**HALOGEN
FREE**


Note: MSL 3 (Moisture Sensitivity Level) per J-STD-020

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 8	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	-3.7	A
Pulsed Drain Current (Note 1)		I_{DM}	-14.8	A
Total Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	2.7	W
	$T_C = 70^\circ\text{C}$		1.7	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	- 55 to +150	$^\circ\text{C}$

THERMAL RESISTANCE			
PARAMETER	SYMBOL	MAXIMUM	UNIT
Thermal Resistance – Junction to Case	$R_{\theta JC}$	45	$^\circ\text{C/W}$
Thermal Resistance – Junction to Ambient (Note 2)	$R_{\theta JA}$	128	$^\circ\text{C/W}$

Note:

1. Pulsed width limited by maximum junction temperature pulse Width $\leq 100\mu\text{s}$.
2. Device on a PCB FR4 with 1 in² (single layer, 2 oz thick) copper area for drain connection.

ELECTRICAL CHARACTERISTICS (T _A = 25°C unless otherwise noted)						
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250μA	BV _{DSS}	-20	--	--	V
Gate Threshold Voltage	V _{GS} = V _{DS} , I _D = -250μA	V _{GS(TH)}	-0.45	-0.7	-0.95	V
Gate-Source Leakage Current	V _{GS} = ±8V, V _{DS} = 0V	I _{GSS}	--	--	±100	nA
Drain-Source Leakage Current	V _{GS} = 0V, V _{DS} = -16V	I _{DSS}	--	--	-1	μA
Drain-Source On-State Resistance (Note 3)	V _{GS} = -4.5V, I _D = -2.2A	R _{DS(on)}	--	63	140	mΩ
	V _{GS} = -2.5V, I _D = -1.8A		--	79	200	
	V _{GS} = -1.8V, I _D = -1A		--	103	300	
Forward Transconductance	V _{DS} = -5V, I _D = -2.2A	g _{fs}	--	11	--	S
Dynamic						
Total Gate Charge	V _{GS} = -4.5V, V _{DS} = -6V, I _D = -2.2A	Q _g	--	7	--	nC
Gate-Source Charge		Q _{gs}	--	0.8	--	
Gate-Drain Charge		Q _{gd}	--	1.6	--	
Input Capacitance	V _{GS} = 0V, V _{DS} = -6V, f = 1.0MHz	C _{iss}	--	596	--	pF
Output Capacitance		C _{oss}	--	71	--	
Reverse Transfer Capacitance		C _{rss}	--	66	--	
Switching (Note 4)						
Turn-On Delay Time	V _{GS} = -4.5V, V _{DD} = -6V, I _D = -2.2A, R _G = 3.3Ω	t _{d(on)}	--	7.8	--	ns
Rise Time		t _r	--	36	--	
Turn-Off Delay Time		t _{d(off)}	--	84	--	
Fall Time		t _f	--	48	--	
Source-Drain Diode						
Diode Forward Voltage (Note 3)	V _{GS} = 0V, I _S = -1.05A	V _{SD}	--	-0.8	-1.2	V

Notes:

- Pulse test: Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- Switching time is essentially independent of operating temperature.

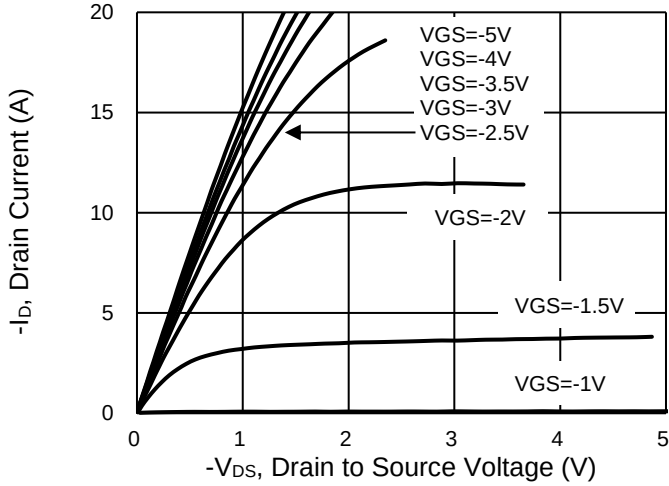
ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TSM3911DCX6 RFG	SOT-26	3kpcs / 7" Reel

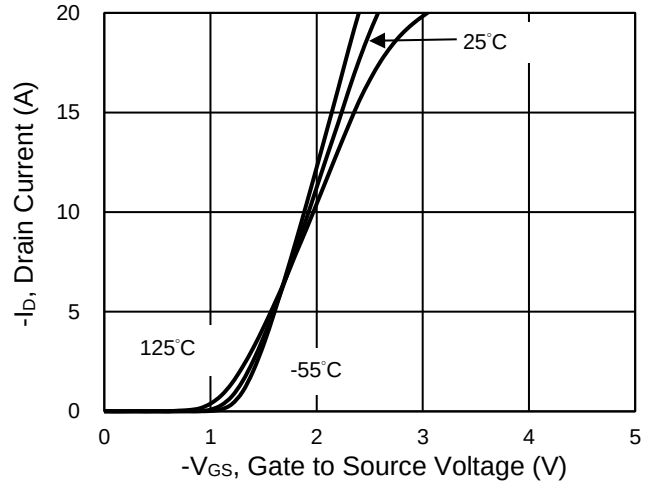
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

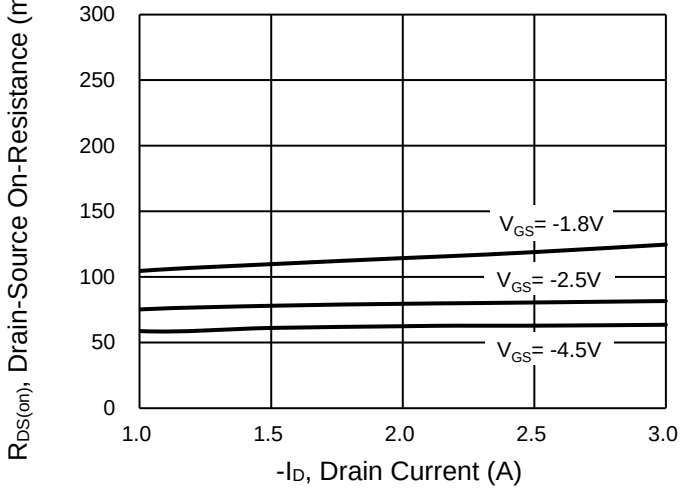
Output Characteristics



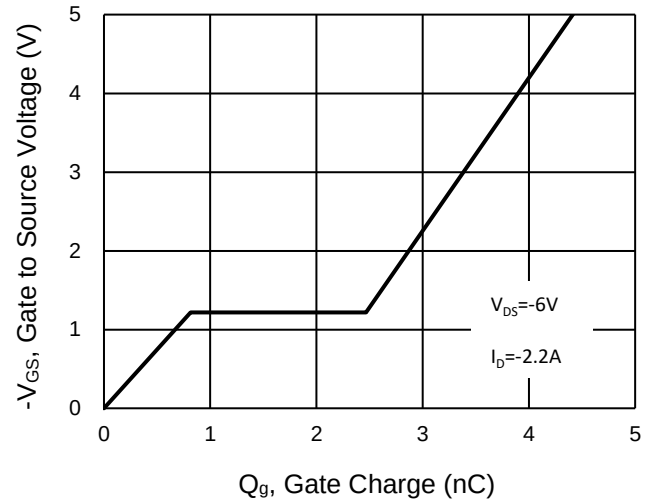
Transfer Characteristics



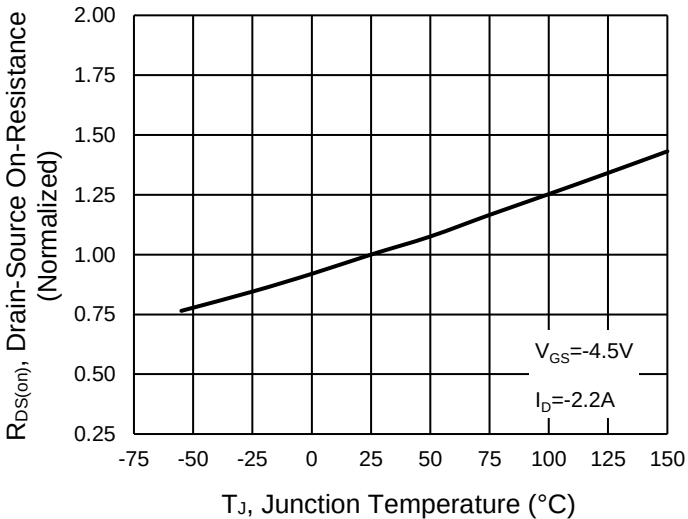
On-Resistance vs. Drain Current



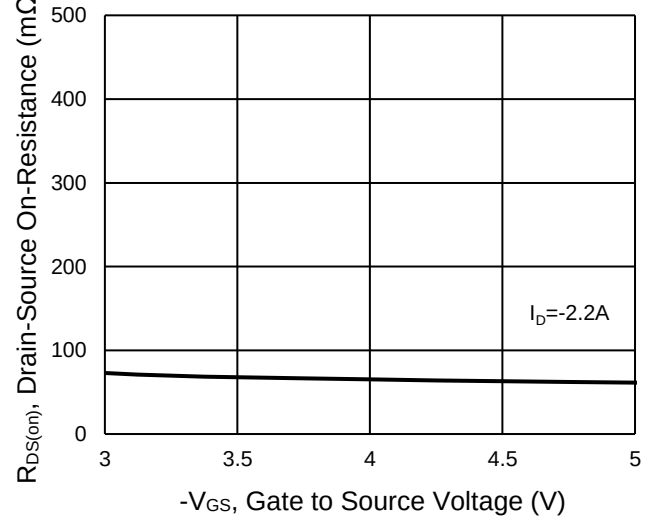
Gate-Source Voltage vs. Gate Charge



On-Resistance vs. Junction Temperature

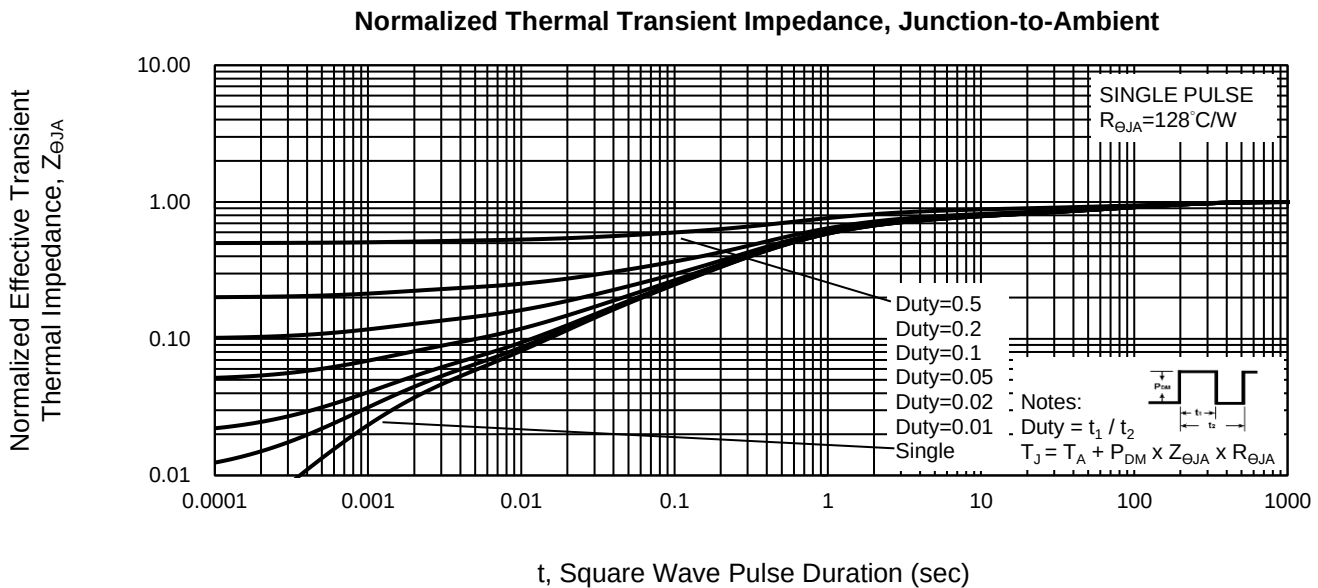
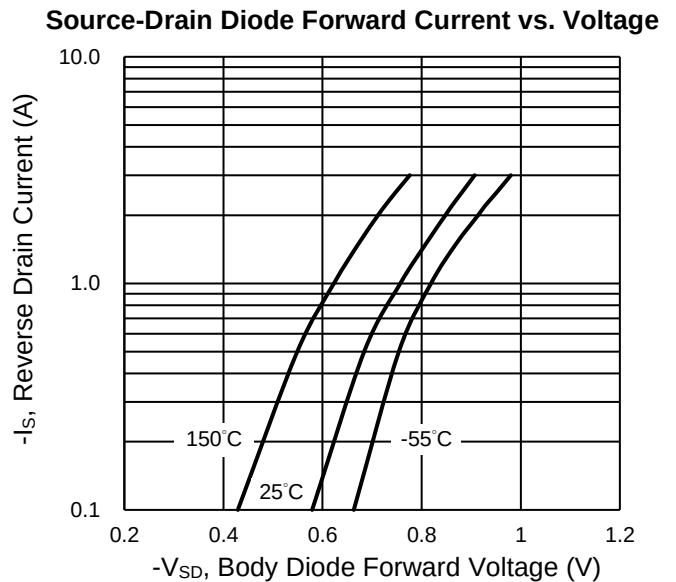
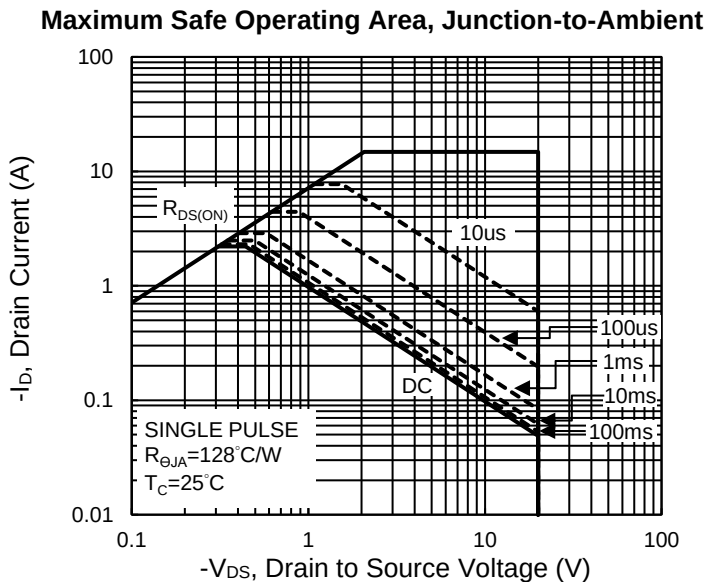
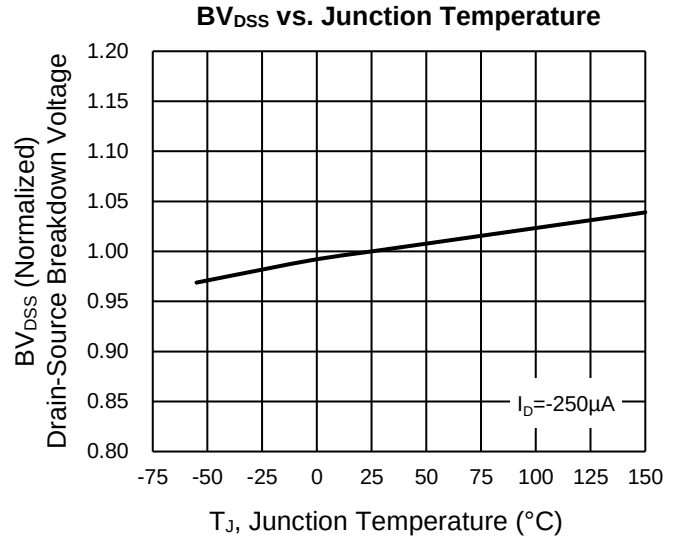
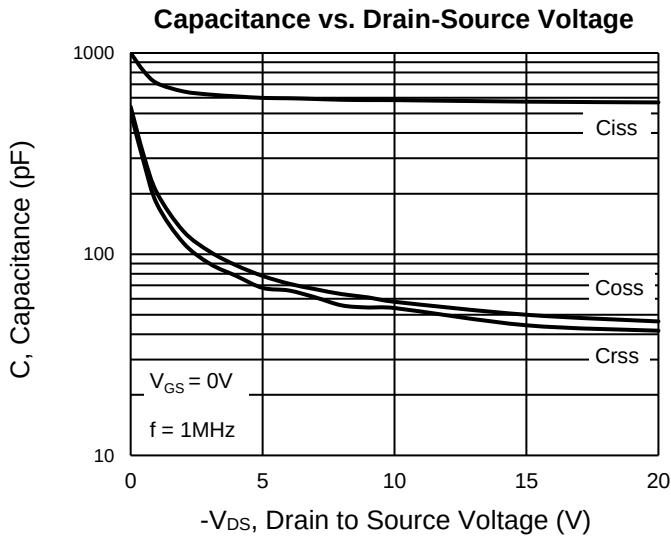


On-Resistance vs. Gate-Source Voltage



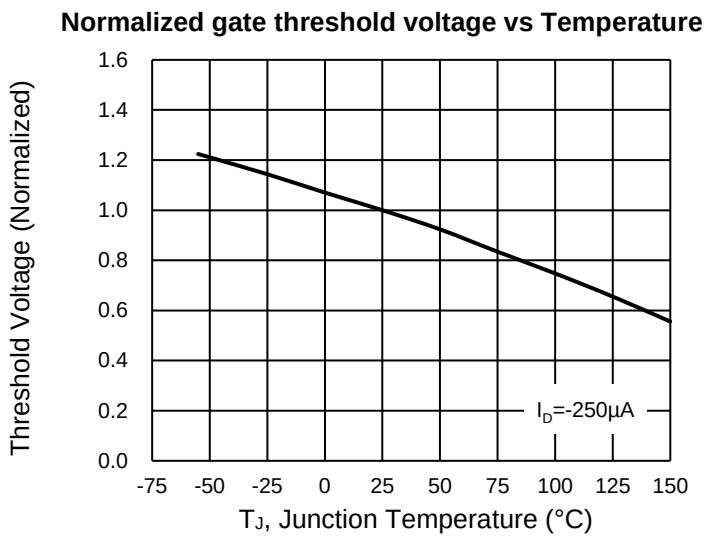
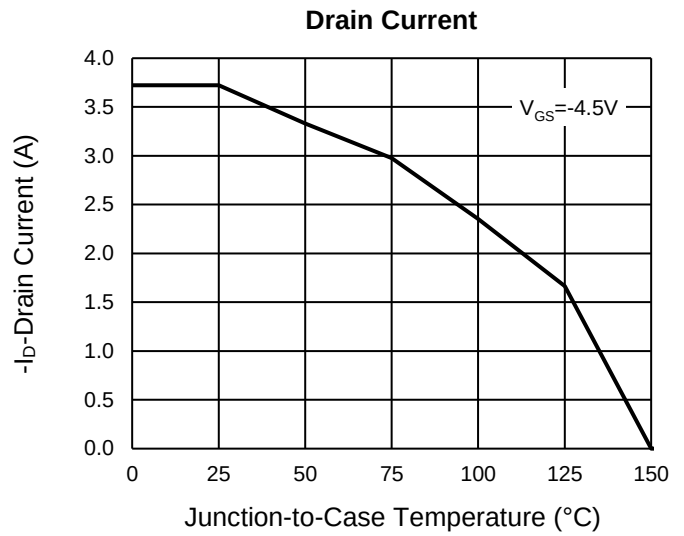
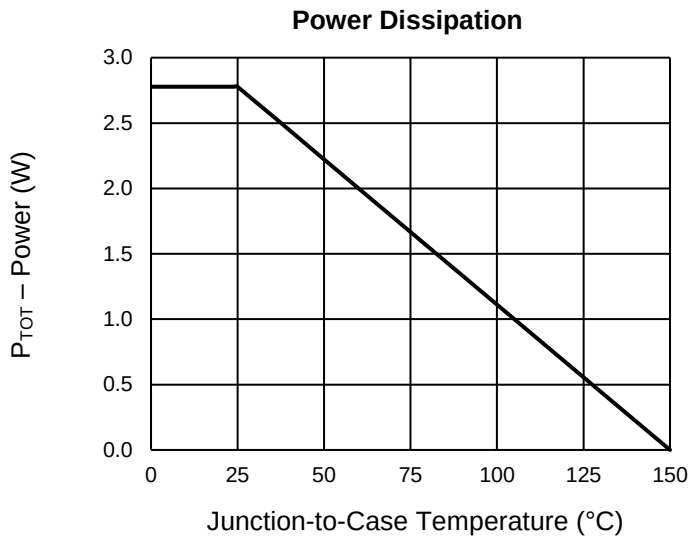
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)



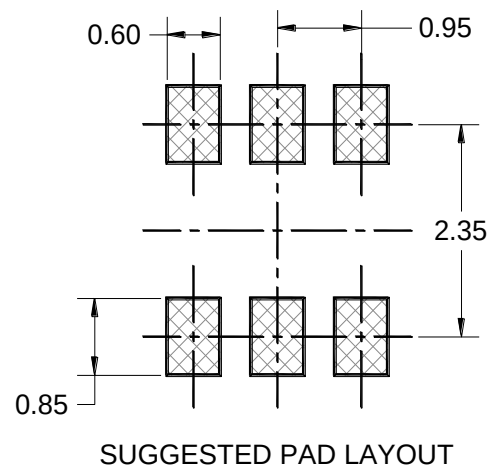
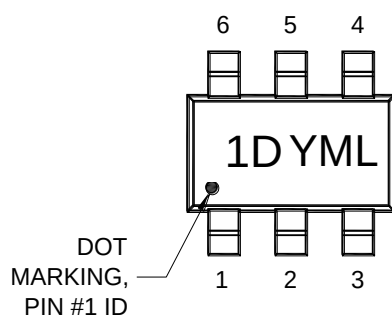
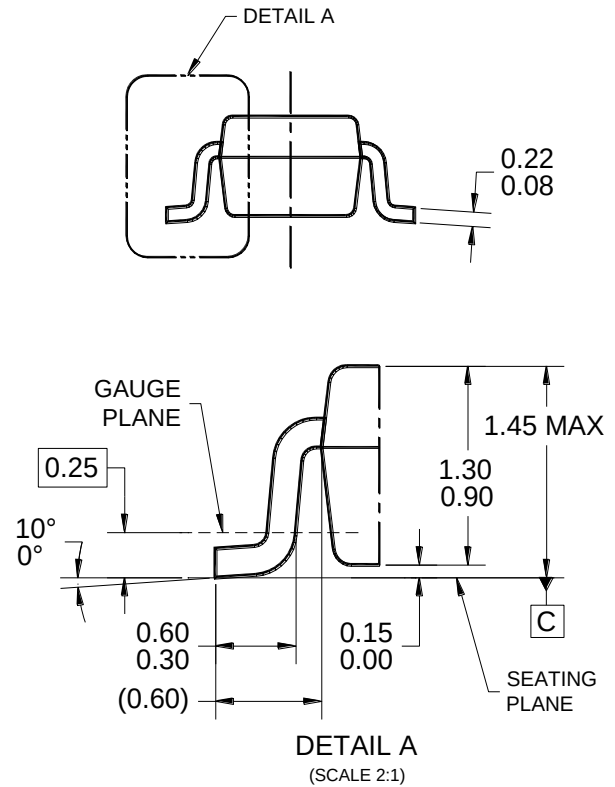
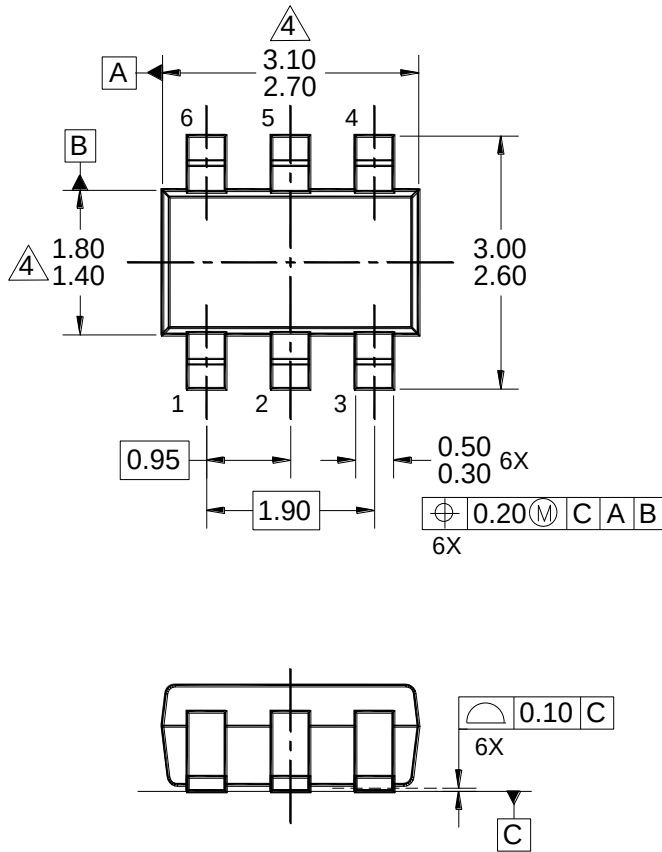
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)



PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

SOT-26



NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC MO-178, VARIATION AB.

- 4** MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

5. DWG NO. REF: HQ2SD07-SOT26-027 REV A.

Y = YEAR CODE
M = MONTH CODE FOR HALOGEN FREE PRODUCT
O = JAN P = FEB Q = MAR R = APR
S = MAY T = JUN U = JUL V = AUG
W = SEP X = OCT Y = NOV Z = DEC
L = LOT CODE

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